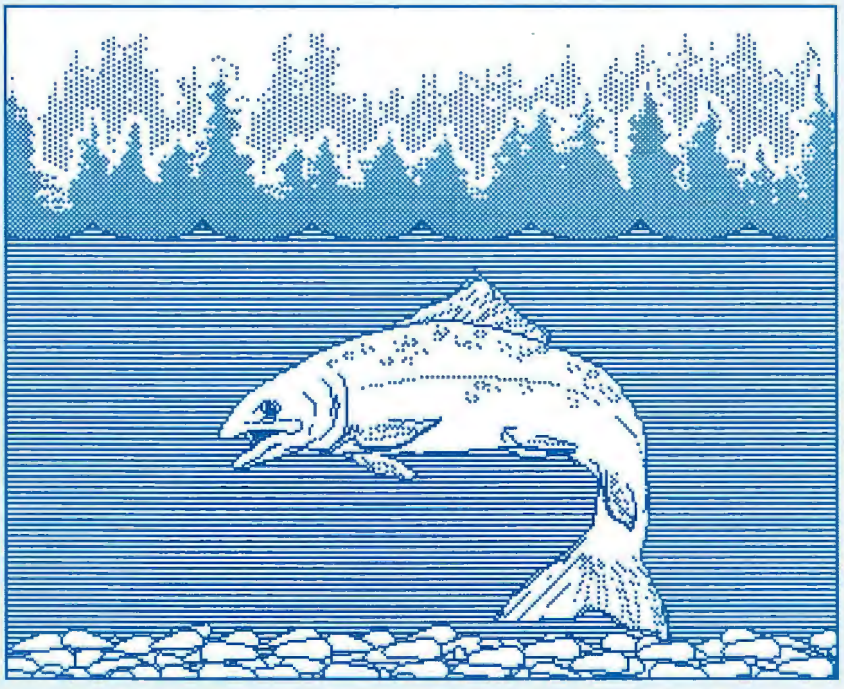
Fish Habitat Inventory & Information Program

SISS
USER'S MANUAL



Fisheries and Oceans

BC Ministry of Environment and Parks

Canada

Fish Habitat
Inventory & Information
Program

SISS
USER'S MANUAL

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Department of Fisheries & Oceans

Habitat Management Division

FISH HABITAT INVENTORY AND INFORMATION PROGRAM

STREAM INFORMATION SUMMARY SYSTEM (SISS)

USER'S MANUAL

V 2.0

prepared by

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TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION TO THE STREAM INFORMATION SUMMARY SYSTEM

The purpose of this manual is to describe how to enter, edit and retrieve information from the Stream Information Summary System (SISS). Section 1.0 provides background information about the development of the system, its potential uses and a general description. Sections 2.0 and 3.0 outline how to enter and exit the system. Section 4.0 describes the Main Menu. Section 5.0 describes working with the system, field types, screen movement, function keys and validation. Section 6.0 contains the input and coding instructions for each field on a screen by screen basis. (Note that the same coding instructions also apply when manually filling out the Stream Information Summary Data form (Appendix A)). Section 7.0 outlines the details of submitting a report for printing. A blank SIS data form, entry codes, reference citing conventions, a sample SIS report and system error messages are included in the Appendices.

1.1 Background

A first step in the development of a regional habitat inventory database was to organize and summarize existing information on fish habitat. To facilitate this task, the Stream Information Summary (SIS) form (Appendix A) was developed. The form summarizes the key habitat information available for an individual stream and provides reference sources for this information. The information is stored on the Stream Information Summary System (SISS) computer database and is used to provide accurate fish habitat information in a timely manner and thereby improve the efficiency of decision making in many areas of fisheries management. Potential uses of the database include: initial screening of habitat referrals; providing an overview of productive potential for stock management purposes; selecting streams for enhancement, restoration or management activities; identifying streams for research programs; and providing information to agencies, companies and the public.

The Stream Information Summary System (SISS) is a series of programs designed for the input, storage and output of fish habitat information and associated bibliographic sources. Some of the key features of SISS include:

- Interactive data entry, ie. data can be entered directly on computer without necessarily completing the SIS form;
- Production of hard copy SIS reports;
- Information can be easily updated and new summary reports generated;
- Error checking of coded information;
- Bibliographies generated on a stream by stream or DFO/MOE management unit basis; and
- On-line search/sort capability for streams with specific characteristics, for example, all coho streams on a specific subdistrict with log jams and forestry operations.

SISS was developed by Synerlogic Inc., under the direction of A. Fiteni, Information Technology Services Division, and K. Pontus and J. Mathers of the Federal/Provincial Fish Habitat Inventory and Information Program. The system resides on the Dept. of Fisheries and Oceans (DFO) regional VAX computer and is accessible to any DFO or B.C. Ministry of Environment (MOE) VAX user.

1.2 General Description

The Stream Information Summary System is written in INGRES using EQUEL/PL1 and Digital Command Language. There are 28 tables (or files) of which 8 contain support codes (species, subdistricts, barriers, etc.). The remaining tables correspond to sections in the SIS data form namely: stream description, gradient, obstruction, flow, distribution, escapement, life history timing, enhancement/management activities, land use/water use/water quality activities, fish production potential constraints/general comments, fishery officer narrative/completed by and bibliographic information.

There are 12 data entry screens: one screen corresponding to each type of information described above; 2 screens for submitting stream summary and bibliography reports for printing; a general query screen for

searching the data base within a given geographic area; and 2 program generated screens for listing watershed codes and stream names. In addition, a Scientific Authority screen is provided to select DFO/MOE biologists for stream summary validation purposes.

1.3 System Owner

K. Pontus
Habitat Inventory Database Biologist
Habitat Management Division
Fisheries Branch
Pacific Region
Fisheries and Oceans Canada.

1.4 Principal Users Of The System

The following list represents key SISS users. With the exception of HABMGR, these users are habitat inventory biologists who have been thoroughly trained in the operation of SISS and can act as resource persons for the Federal/Provincial Fish Habitat and Inventory program.

HABMGR But Choi Chui DFO ITSD (Van.)	**KPONTUS** Kathy Pontus DFO HMD (Van.)	**REIDB** Bruce Reid DFO HMD (Van.)	**PENDRAY** Tom Pendray DFO HMU (Pr. Rupert)
JAREMOVIC Lydia Jaremovic DFO HMU (New Westminster)	**TUTTY** Brian Tutty DFO HMU (Nanaimo)	**MOEVIC** Stu Hawthorn MOE (Victoria)	

2.0 HOW TO START THE SYSTEM

To Sign onto the Regional VAX system from a DEC VT220 terminal, press the period key twice.

VAX RESPONSE	YOU ENTER
SERVICE:	- **PRDFO** <RTN>
USERNAME:	- your username <RTN>
PASSWORD:	- your password <RTN>

If you have a captive account, the Gateway welcome message will be displayed followed by the DFO Regional Information System (RIS) menu. Type the number assigned to SISS in this menu and press either the **<DO>** or **<RETURN>** key. The SISS Main Menu will be displayed. If your account is not captive, type **SISS** at the **$** prompt.

If you are using a personal computer as a terminal to the VAX, follow the procedure for establishing a connection as outlined in your communications software manual. Upon connection you will be prompted for **SERVICE:**, sign on using the procedure outlined above.

If you have been disconnected, sign on following the steps already described. After you have entered your password, the message "**Connect to above listed process [YES]: Y**" will be displayed, answer "**Y**", press **<RETURN>** and then simultaneously press the **<CTRL>** and **W** keys to redisplay the screen and data as it was before you were disconnected.

3.0 HOW TO EXIT THE SYSTEM

To quit from SISS, press the **<PF4>** key from any screen in the system other than a HELP screen. The message **"DO YOU REALLY WANT TO EXIT?"** will appear. Answer **"Y"** and press the **<RETURN>** key. Press **<RETURN>** again when prompted for the RIS menu and **<PF4>** to exit.

VAX RESPONSE	YOU ENTER
Do you really want to exit?	"Y" <RTN>
Press <Return> to return to RIS:	<RTN>
RIS menu appears	<PF4>

To quit from a **HELP** screen, press **<PF3>** and continue as already described. Note that if you are in the process of adding or updating information to a stream summary or bibliographic reference, changes will not be saved when you exit the system in this manner.

4.0 MAIN MENU

The Stream Information Summary System has 6 functions:

1. Stream Maintenance
2. Bibliography Maintenance
3. Print Streams
4. Print Bibliographies
5. Stream Query
6. Scientific Authority.

The Stream Maintenance and Bibliography Maintenance functions are used to **ADD**, **UPDATE** and **EXAMINE** stream summary information and associated bibliographic references. Print Streams and Print Bibliographies are used to generate stream summary and bibliography reports. Stream Query is used to search the data base for a subset of streams within a geographic area and Scientific Authority is used by designated biologists to validate stream summary information.

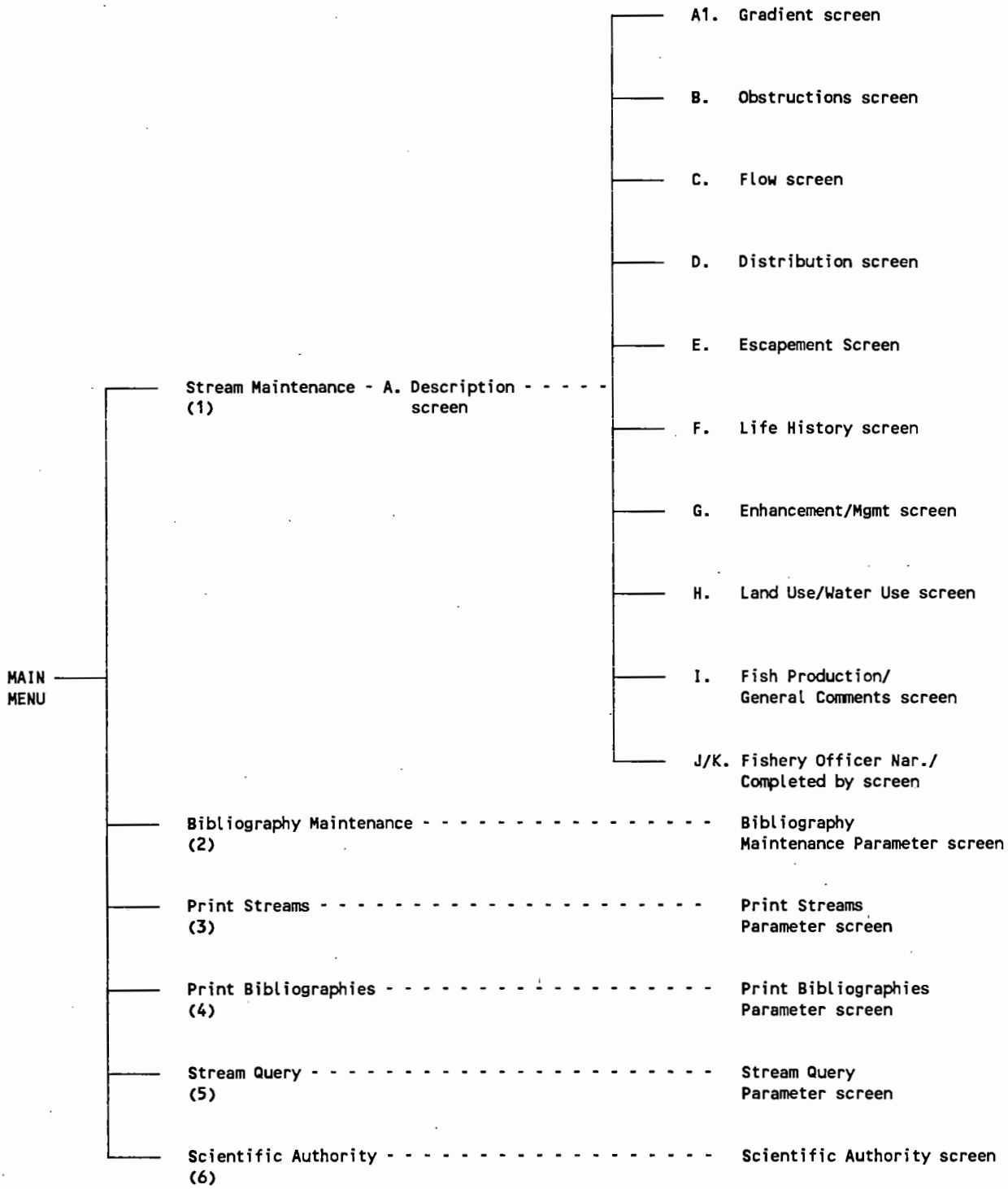
The system is menu driven so that you can initiate any of the 6 functions by typing the corresponding number in the Main Menu. To enter a function, type the number corresponding to it in the Main Menu. For example, type 1 to enter the Stream Maintenance function. Note: Do not press return after your entry. The main menu screen contains 3 display fields; **DATE**, **Userid** and **Database**. These fields are automatically entered with today's date, VAX user signon name and database source respectively. The Main Menu display appears as follows.

```
DFO PACIFIC REGION              SISS                    DATE: 90 JAN 15
HABITAT MANAGEMENT       Contact: J.S. Mathers          Userid: KPONTUS
==============================habitat.qpl=======================
                                                        Database:  REGION

                 STREAM INFORMATION SUMMARY SYSTEM

                            M A I N   M E N U

                    1.  Stream Maintenance

                    2.  Bibliography Maintenance

                    3.  Print Streams

                    4.  Print Bibliographies

                    5.  Stream Query

                    6.  Scientific Authority

           Enter the number of your choice:

================================================================
```

All functions are accessed from the Main Menu (see Fig A). Function (1), Stream Maintenance, has a series of 11 associated screens (A through J/K) which correspond to the 11 sections of the Stream Summary Data form (Appendix A). When you select this function from the Main Menu, the Description Screen (A) is the first screen displayed in the series. This screen governs your access to the remaining Stream Maintenance screens (A1 through J/K). Once you have met the requirements of screen (A) you can move between the Stream Maintenance screens in any order you wish. Functions (2), (3), (4), (5), and (6) each have a single associated screen that is displayed when you select the function.

If you are already in a function (1 through 6), you must return to the Main Menu before you can access another function. For example, if you are in function (2), Bibliography Maintenance, and you want to add, update or examine stream summary information, you must return to the Main Menu and then select function (1), Stream Maintenance. **Note: You must return to the Description screen (A) before you can access the Main Menu from the Stream Maintenance function.**

Figure A. Relationship between SISS Main Menu and SISS functions



5.0 GENERAL KEYS AND FEATURES OF SISS

In SISS, "function" and "screen movement" keys have been designed to allow the user to efficiently manipulate information screens. The following sections describe the application of these keys within SISS.

5.1 Function Keys

Function keys are special keys that have been programmed to carry out an action. They usually eliminate several steps and will work from anywhere on a screen. In the text of this manual, function keys are placed within brackets eg. **(F8)** or **<PF3>**.

In SISS, these keys are used for several activities including: choosing add, update, or examine mode; deleting a row of data; requesting a print job; or moving from screen to screen (see Table 1 for key identification and function description). For example, if you are in Stream Maintenance on the Obstructions screen (B), pressing the **NEXT SCREEN** function key **(F20)** will move you to the next screen in the series, Flow (C).

In SISS, function keys and their definitions appear in a menu line at the bottom of a screen. In some cases there will not be enough room to display all the function keys available. When this is the case, a ">" symbol will appear at the end of the menu line indicating that more keys are available. To scroll through the additional keys available for a screen, press **<PF1>** once to bring the cursor to the menu line and press again to scroll to the next set of function keys. You will have scrolled through all the available keys when the initial list is redisplayed.

For those users who access SISS through a personal computer, the action of a function key can be mimicked by pressing <PF1> and entering the key's definition. For example, the **NEXT SCREEN (F20)** key is programmed to move you from the Flow screen (C) to the Distribution screen (D) in Stream Maintenance. To mimic **(F20)** on this screen, press **<PF1>**, type **NEXT SCREEN** and press **<return>**.

Some screens have undefined function keys. In these cases the undefined keys appear in the menu line as a ".", eg., **.(F14)**. If you press an undefined key the system will beep. Undefined function keys can only used by the system analyst (ITSD).

5.2 General Screen Movement Keys

The following general screen movement keys are standard throughout the system.

TAB:	Used to move the cursor to the next data entry field, leaving the data intact.
<CTRL> P:	Used to move the cursor back to the beginning of the previous data field.
RETURN:	Used to move the cursor to the next row of a table field.
ARROW:	Used to move the cursor to the right (->) or left (<-) within a data entry field or up (↑) and down (↓) in a table field.
<CTRL> W:	Used to redisplay the screen and data as it was before you were disconnected or received a mail or system message.

5.3 Field Types

There are two types of fields used in SISS, **simple** and **table**. Simple fields generally accept one entry, and depending on your terminal, will appear as lines or blanks on a screen. Table fields, on the other hand, accept an indefinite number of entries or rows and are displayed as boxes. Stream Name on the Stream Maintenance Description screen is an example of a simple field; it is displayed as a line and accepts one entry for a stream name. Tributary Name and code on the same screen are examples of table fields; they are displayed in a box capable of accepting an indefinite number of tributary names and codes.

5.4 Stream Validation

SISS contains two types of stream summaries, **Original** and **Working**. Original summaries contain data that has been validated through SISS by a scientific authority, whereas working summaries do not. Initially when a stream summary is added to the database it is a "**Work Copy**". Later when the summary is validated, it becomes an "**Original**". To find out if a summary has been validated, go to screen J/K and locate the "Validated by" field. A name and date will be present if the stream has been validated.

When an Original summary is updated it becomes a working copy and the Description and Completed by screens are automatically designated working along with any other screens that have been updated. In addition, a list of the updated screens is logged on the Completed by screen. For example, if stream summary x is an original, i.e., it has been validated through SISS by a Scientific Authority, all the screens for that summary display the word "**Original**". If the Obstructions (B) and Distribution (D) screens of that summary are updated, the summary becomes a working copy and screens A,B,D,J/K display the words "**Work Copy**". Screens B and D are listed next to the "**Last Updated by:**" field on screen J/K the Completed By screen. Screens that have not been updated continue to display the word "**Original**".

After an original has been updated, both working and original copies are available from the database until a scientific authority validates the summary. On validation, however, the working copy becomes the new original.

Note: The original and working copy summaries are handled differently by each SISS function. Stream Maintenance displays a working summary if it is available; Print Streams provides the option of selecting original or working copies; and Stream Query only searches originals.

Table 1: Summary of Function Keys and their Application to Screens in Stream Maintenance

KEY	FUNCTION	SCREENS
F10	**CLEAR** the screen and mode (i.e. add, update, examine).	ALL
F11	**ADD** stream maintenance and bibliography screens respectively.	(A) and (2)
	UPDATE in scientific authority screen.	(6)
F12	**UPDATE** stream maintenance and bibliography screens respectively.	(A) and (2)
F13	**EXAMINE** stream maintenance and bibliography screens respectively.	(A) and (2)
F17	**DELETEROW.** Delete a table field row from the screen.	ALL screens except (J/K)
F18	**SELECT.** To select information from the data base.	(3), (4) and (5)
F19	**NEXT DATA.** Display Next Screen with Data.	ALL Stream Summary screens (A-J/K)
	PRINT JOB. If you want to print report locally.	(3), (4) and (5)
F20	**NEXT SCREEN.** Display next screen in sequence.	ALL Stream Summary Screens (A-J/K)
PF1	Moves cursor to Menu line. Input key definition or Stream Summary screen letter (A-J/K).	ALL
PF2	**HELP FUNCTION.** Will provide you with instructions on how to use a particular screen.	ALL
PF3	Will return you to the previous screen.	ALL
	SELECT. Will select stream when more than 1 stream with the same name exists.	A
PF4	**QUIT** the system.	ALL
DO	**RUN JOB.** To begin the print submission process. to Laser printer.	(3), (4) and (5)
	NEXT WILL advance to next stream if more than 1 stream with the same name exists.	A
HELP	**PREVIOUS.** Will return to previous screen if more than 1 stream exists with the same name.	A

6.0 INPUT SCREENS AND CODING INSTRUCTIONS

The following section describes the content and operation of the 18 input screens that are available to SISS users. All screens are accessed through one of the 6 functions available from the Main Menu (stream maintenance, bibliography maintenance, print streams, print bibliographies, stream query and scientific authority). Data validation is performed through the scientific authority function and therefore this option has restricted access.

A SISS header appears with each input screen which describes the name, region and division of the system owner as well as the current date and userid. For all screen modes, these fields are automatically assigned by the system and are inaccessible by the user.

6.1 Stream Maintenance

The stream maintenance function provides access to fish habitat information available through a series of 11 associated screens (A through J/K) which correspond to sections of the Stream Summary Data form which is completed by field personnel (see Appendix A). Press "1" from the main menu form to select the stream maintenance option.

The three modes available through the Stream Maintenance function are: **ADD, UPDATE AND EXAMINE.** "ADD" mode is used to add a new stream summary to the database; "UPDATE" mode is used to modify or add data to a stream already exists in the system; and "EXAMINE" mode is used to view a previously stored summary.

To begin, you must choose to work in either ADD, UPDATE or EXAMINE mode. Select the function key which appears at the bottom of the screen corresponding to the mode you wish to operate. In the screen header, the highlighted blank box next to the screen title will display the mode you have selected. Only those function keys which are defined appear in the main menu line.

To **ADD or UPDATE** stream summary information:

1. Choose either **ADD** or **UPDATE** mode (**<F11> or <F12>** keys).

2. Enter data.

   A series of system messages will appear below the display screen to prompt responses from the user. In ADD and UPDATE mode, new data must comply with acceptable data entry codes (see Appendix B for acceptable data entry codes). For example, the watershed code must be defined within the subdistrict code or an error message will appear (See Appendix E for **ATTENTION and ERROR MESSAGES**). All bibliographic references must be entered through the Bibliography Maintenance function before they can be used in a stream summary.

   To **add new tributaries**, choose "update" mode, call up the parent stream and add the new tributary name and code into the tributary table. Complete the update screen confirm update and exit. Then choose "update" mode again, call up the new tributary and add new information.

   If new tributaries are entered in "add" mode, they are not linked to their parent streams within the SISS database and will not be accessed when information for a mainstem river and tributaries is requested.

3. Complete the ADD or UPDATE and exit the function.

   Advance to screen J/K. Fill out **Completed by and Date** fields. Press **NEXT SCREEN, (<F20> key)** to advance to the Description screen and press **ADD <F11>. You will then be prompted with "confirm update? Y/N". Enter "Y"** for yes to complete the addition or update of the stream summary.

To **EXAMINE** stream summary information:

1. Choose EXAMINE mode by pressing the **<F13>** key.
2. Call up the stream you wish to examine by entering either Stream name, Local name or Watershed code. (see Table 2 for Stream and Local name convention). You can now view stream information data on any Stream maintenance screen using the function keys identified at the bottom of the screen display.
3. To complete EXAMINE mode, return to screen A and press the EXAMINE **<F13>** key, and **<RTN>** to exit EXAMINE function.

You can exit from any mode by pressing the CLEAR SCREEN **<F10>** key from Screen A. This will clear the present mode and allow you to select a new one.

The following sections identify the stream maintenance input screens and describe the field types associated with each screen.

6.1.1 Screen A: Description

The Description screen is the first in a series of Stream Maintenance screens. You must always enter and exit the stream maintenance option through screen A. See Table 2 for field descriptions.

DFO PACIFIC REGION SISS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Userid: KPONTUS
==========stream-maint.qpl=or=sa-update.qpl==========

A. DESCRIPTION
Stream Name:
Local Name:
Watershed Code:

Tributaries	Code

D.F.O. Division:
Subdist: District:
Stat. Subarea:
M.O.E.P. Region:
Mgmt Unit:
Topo.(1:50K)Map:
BCGS(1:20K)Map:
U.T.M. Mouth:
Latitude Mouth: dg. ' "
Longitude Mouth: dg. ' "
Mainstem Len.: Km Rf:
Watershed Area: k2 Rf:

Location:

Clear(F10) Add(F11) Update(F12) Examine(F13) DeleteRow(F17)>

Table 2: Field descriptions of Screen A: Description Summary.

FIELD	FUNCTIONS	DESCRIPTION
MODE		Displays the current action being performed.
	EXAMINE	The stream summary is in the process of being examined.
	UPDATE	The stream summary is in the process of being updated.
	ADD	A new stream summary is being added.
VALIDATED		Display Only. Indicates the type of information being displayed.
	WORKING	The information displayed on the screen has not been validated by a Scientific Authority.
	ORIGINAL	The information displayed on the screen has been validated by a Scientific Authority.
STREAM NAME		The stream name should be that found in the Gazetteer of Canada. Use the following convention: R for River eg. Salmon R C for Creek eg. Beaver C S for Slough B for Brook G for Gulch There is no period after the waterway abbreviation. This field must be completed before you can leave the Description screen.
WATERSHED CODE		As listed in the Water Management Branch, Ministry of Environment dictionary of watershed codes. DFO modifications of the code to indicate side channels etc. should not be used. This field must be entered before you can leave the Description screen.
LOCAL NAME		The local stream name or names, if they exist, with the same abbreviations for river, creek etc. as used for Stream Name. Note: Use commas to separate local names.

Table 2 cont'd: Field descriptions of Screen A: Description Summary.

FIELD	FUNCTIONS	DESCRIPTION
TRIBUTARIES		The Gazetted name of tributaries to the stream being summarized. Use the same abbreviations for river, creek etc. as used for Stream Name field. **Note:** When an add or update is completed, the system automatically places an N beside tributaries that are not documented in the data base and a D beside those that are documented.
CODE		The distinguishing level of the watershed code which uniquely identifies the tributary. This field must be completed if a tributary name has been entered.
D.F.O. DIVISION		Display only. The appropriate Division will be displayed by the system when the Subdistrict is entered. There are three DFO divisions; Fraser River, South Coast and North Coast.
SUBDISTRICT		The D.F.O. Subdistrict number pertaining to the location of the stream mouth. Refer to Appendix B1 for valid Subdistrict codes. This field must be completed before you can leave the Description screen.
DISTRICT		The appropriate D.F.O. District will be displayed when you enter a Subdistrict.
STAT. SUBAREA		The D.F.O. Statistical Subarea. Maps defining the sub-areas are available from the DFO Offshore division office in Vancouver and regional subdistrict offices. Further detail on exact boundary locations can be found in the "Pacific Fishery Management Area Regulations" guide also available from these offices.
M.O.E.P. REGION		The M.O.E.P. region number. See Appendix B2 for valid regions.
MGMT UNIT		The M.O.E.P. Management Unit as indicated by boundaries found on maps in the B.C. Sport Fishing Regulations Synopsis.
TOPO. (1:50K) MAP		The code of the 1:50,000 scale National Topographic Series (NTS) map sheet that covers the stream mouth. Entries must contain a "/";eg., 103/I6.

Table 2 cont'd: Field descriptions of Screen A: Description Summary.

FIELD	FUNCTIONS	DESCRIPTION
BCGS (1:20K) MAP		The code of the 1:20,000 scale British Columbia Geographic System (BCGS) map number that covers the stream mouth.
U.T.M. MOUTH		The full Universal Transverse Mercator (U.T.M.) coordinates of the stream mouth.
LATITUDE MOUTH		The Latitude of the stream mouth in degrees, minutes, and seconds as found in the Gazetteer of Canada.
LONGITUDE		The Longitude of the stream mouth in degrees, minutes, seconds as found in the Gazetteer of Canada.
MAINSTEM LEN.		The mainstem length to the nearest 0.1 kilometre.
WATERSHED AREA		The watershed area to the nearest 0.1 km^2.
REF		The references for the Mainstem Len. and Watershed Area fields respectively. These fields must be completed appropriately if either mainstem length or watershed area information is entered. Note: If either the length or area has been calculated by an individual, the information should be referenced as personal communication and the method used indicated on the citation. Refer to **Appendix C** for citation examples.
LOCATION		A description of the stream location. An appropriate description can be found in the Gazetteer of Canada, 2nd edition. The location information does not require a reference.

6.1.2 Screen A1: Description (Grad Class/Location)

The Description screen is second in the series of screens available through Stream Maintenance. This screen is used to describe gradient classification and location. See below for field descriptions. **You must have selected Stream Maintenance from the Main Menu and an activity (add, update, examine) on the Description Screen before this screen can be displayed.**

DFO PACIFIC REGION SISS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Examine Userid: KPONTUS
ORIGINAL
==========grad.qpl====

A1. DESCRIPTION (Gradient Class/Location)

0-0.5%	0.5-2%	2-5%	5-10%	>10%

Gradient Comment	Ref(s)

==========

Clear (F10) Deleterow (F17) Next Data (F19) Next Screen (F20) A>

Table 3: Field descriptions for Screen A1: Description (Grad Class/Locat)

FIELD	DESCRIPTION
(GRADIENT CLASS/LOCATION)	The location(s) in km upstream from the mouth of gradient ranges the gradient classes listed. Use a hyphen to separate the kilometres in a gradient class, eg., 9-10.
GRADIENT COMMENT	Comments on stream gradient and/or sources for gradient class locations listed in the Gradient Class/Location table.
REF(S)	The bibliographic reference number for gradient comment. A maximum of three references can be entered per comment. This field must be completed if a gradient comment has been entered. Use the space bar to separate references.

6.1.3 Screen B: Obstructions to Migration

The Obstructions to Migration screen is third in the series of screens available through Stream Maintenance. **You must have selected Stream Maintenance from the Main Menu and an activity (add, update, examine) from the Description screen before this screen can be displayed.**

DFO PACIFIC REGION SISS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Examine Userid: KPONTUS
ORIGINAL
==========obstruction.qpl===
B. OBSTRUCTIONS TO MIGRATION

Bar.	Height	Loc'n	Species	Comments	Ref(s)

==========
Clear (F10 DELETEROW(F17) Next Data (F19) Next Screen (F20) A>

Table 4: Field descriptions of Screen B: Obstructions to Migration

FIELD	DESCRIPTION
BAR.	A barrier to fish migration. This field must be completed if any other barrier information is entered. Refer to Appendix B3 for barrier codes. This field must be completed if any other barrier information is entered.
HEIGHT	The height of the barrier to the nearest 0.1 meter.
LOC'N (km)	The location of the barrier as a distance (to nearest 0.1 km) upstream from the mouth.
SPECIES	The codes of species that are obstructed by the barrier (See Appendix B4 for valid species codes). A maximum of seven species codes can be entered per barrier. Use the space bar to separate species codes.
COMMENTS	Comments on changes in passibility with flow etc.
REF(S)	The bibliographic reference for the barrier information. A maximum of three references can be entered per comment. This field must be completed if any barrier information has been entered. Use the space bar to separate references.

6.1.4 Screen C: Flow

The Flow Screen is fourth in the series of screens available through the Stream Maintenance function. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (add, update, examine) from the Description screen.**

DFO PACIFIC REGION SISS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Examine Userid: KPONTUS
ORIGINAL

C. FLOW

Flow Control:
Water Survey of Canada (WSC) Flow Gauge:
WSC Station No.:

Flow Comments	Ref(s)

Clear (F10) DELETEROW (F17) Next Data (F19) Next Screen (F20) A>

Table 5: Field descriptions for Screen C: Flow

FIELD	DESCRIPTION
FLOW CONTROL	The presence or absence of a dam on the system. Acceptable entries are: Y = Yes, N = No, or Blank = Unknown
WATER SURVEY OF CANADA	The presence or absence of a Water Survey of Canada gauge on the stream. Acceptable entries are: Y = Yes, N = No, or Blank = Unknown
STATION NUMBER	The Water Survey of Canada station number. A maximum of 4 station numbers can be entered. If there are more than four station numbers enter the additional numbers in the flow comments field. Use the space bar to separate station numbers.
COMMENT	Comments on flow, eg., flood events, low flow problems, lakes in the system etc.
REF(S)	The Bibliographic reference number for flow comment information. A maximum of three references can be entered per comment. This field must be completed if a flow comment has been entered. Use the space bar to separate references.

6.1.5 Screen D: Distribution Summary

The Distribution Screen is fifth in the series of screens available through the Stream Maintenance function. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (examine, update or add) from the Description screen.**

DFO PACIFIC REGION — SISS — Date: 90 JAN 15
HABITAT MANAGEMENT — Contact: J.S. Mathers — Examine Userid: KPONTUS
ORIGINAL — SOOKE R — 93-0300

==========distribution.qpl

D. DISTRIBUTION SUMMARY

Specs.	Watershed Distribution	Ref(s)

==========

Clear (F10) DELETEROW (F17) Next Data (F19) Next Screen (F20) A>

Table 6: Field descriptions for Screen D: Distribution

FIELD	DESCRIPTION
SPECIES	The species code for the distribution information. See Appendix B4 for valid species codes. This field must be completed if any distribution information is entered.
WATERSHED DISTRIBUTION	Comments on species distribution in the watershed. This information includes spawning, rearing, overwintering, holding and migration areas. Where possible express locations in distance (km) upstream from the mouth.
REF(S)	The bibliographic reference number for the Distribution comment information. A maximum of three references can be entered per comment. This field must be completed if any barrier information is entered. Use the space bar to separate references.

6.1.6 Screen E: Escapement Summary

The Escapement Summary Screen is sixth in the series of screens available through the Stream Maintenance function. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (examine, update or add) from the Description screen.**

DFO PACIFIC REGION — SISS — DATE: 90 JAN 15
HABITAT MANAGEMENT — Contact: J.S. Mathers — Examine Userid: KPONTUS
ORIGINAL — SOOKE R — 93-0300

E. ESCAPEMENT SUMMARY

Species	Mean	From	To	Ref	Maximum	Ref	Target	Ref

Escapement Comments	Ref(s)

Clear (F10) DELETEROW (F17) Next Data (F19) Next Screen (F20) A>

Table 7: Field descriptions for Screen E: Escapement Summary

FIELD	DESCRIPTION
SPECIES	The species code for the escapement information entered. See Appendix B4 for valid species codes. This field must be completed if any escapement numbers are entered.
MEAN	The mean escapement for a period (generally a 10 year average).
FROM	The beginning year for the mean period.
TO	To ending year for the mean period.
REF	The bibliographic reference for the mean escapement. This field must be completed if a mean escapement has been entered.
MAXIMUM	The maximum escapement for the same period of record used to calculate mean escapement.
REF	The bibliographic reference for the maximum escapement. This field must be entered if a maximum escapement has been entered.
TARGET	The management target escapement where it has been determined.
REF	The bibliographic source of the management target escapement. This field must be completed if a target has been entered.
ESCAPEMENT COMMENTS	Comments on the stream escapement, for example, historical maximums, trends or sources of additional information.
REF(S)	The bibliographic reference number for the escapement comment. A maximum of three references can be entered per comment. This field must be completed if an escapement comment has been entered. Use the space bar to separate references.

6.1.7 Screen F: Life History Timing

The Life History Timing screen is seventh in the series of screens available through the Stream Maintenance function. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (examine, update or add) from the Description screen.**

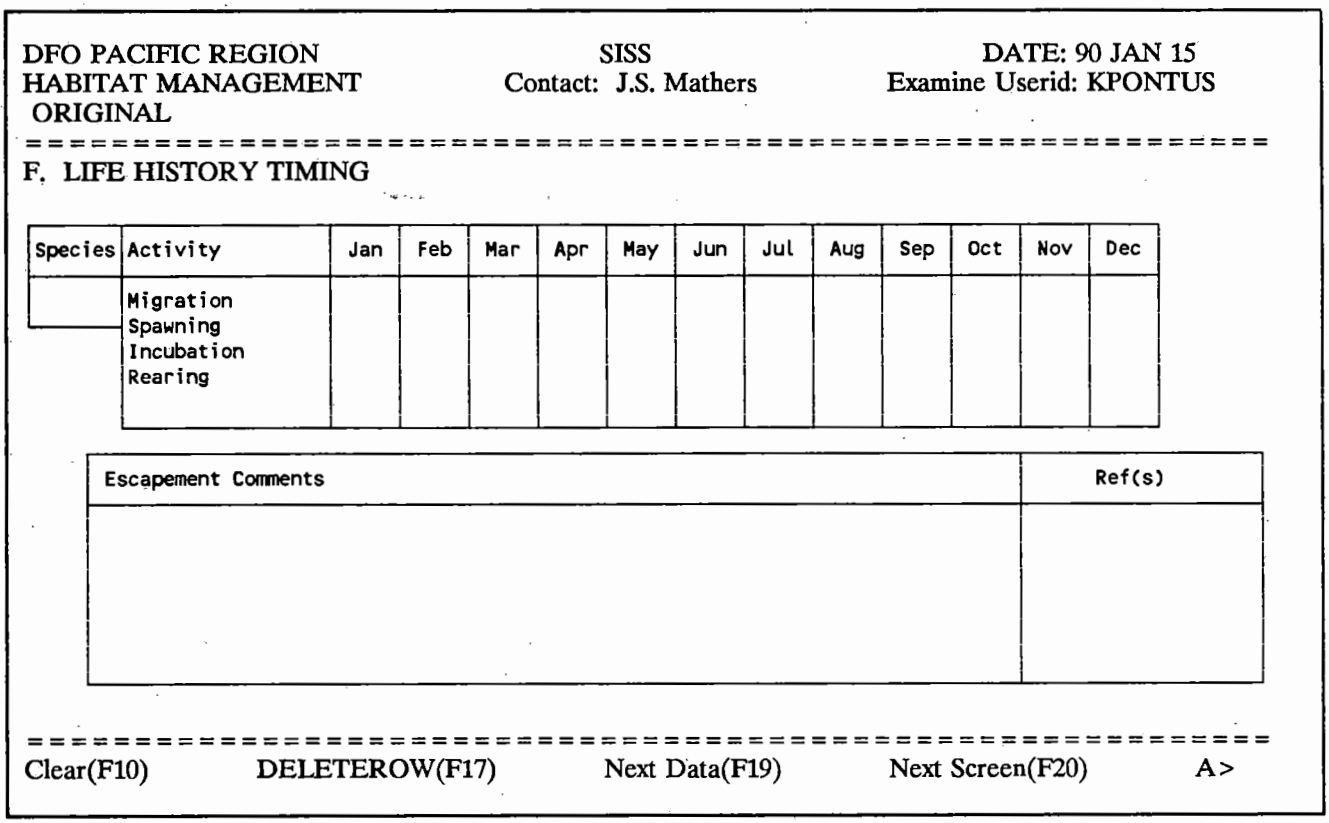


Table 8: Field descriptions for Screen F: Life History Timing

FIELD	DESCRIPTION
SPECIES	Species code for the timing data. See Appendix B4 for valid species codes. This field must be completed if any information is entered in the timing table.
ACTIVITY	The activity occurring and the months in which it occurs. Activities include: Migration, Spawning, Incubation and Rearing. Months of the year are divided into 2 equal periods. Use an "x" to indicate the occurrence of an activity and a "p" to indicate a peak.
LIFE HISTORY COMMENTS	Comments on life history timing, eg., time of first appearance on spawning grounds, time of downstream migration, etc.
REF(S)	The bibliographic reference(s) for the Life History Timing comment. A maximum of three references can be entered per comment. This field must be completed if life history timing information has been entered. Use the space bar to separate references.

6.1.8 Screen G: Enhancement/Management Activities In Watershed

The Enhancement/Management screen is eighth in the series of screens available through the Stream Maintenance function. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (examine, update or add) from the Description screen.**

DFO PACIFIC REGION SISS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Examine Userid: KPONTUS
ORIGINAL SOOKE R 93-0300

G. ENHANCEMENT/MANAGEMENT ACTIVITIES IN WATERSHED

Act	Species	Loc (km)	Comments	Start	Fin	Ref.

Clear (F10) DELETEROW(F17) Next Data(F19) Next Screen(F20) A>

Table 9: Field descriptions for Screen G: Enhancement/Management Activities in Watershed

FIELD	DESCRIPTION
ACT	Enhancement activity code. See Appendix B5 for valid activity codes. This field must be completed if any enhancement or management information is entered.
SPECIES	The species code of the species affected by the enhancement/management activity. See Appendix B4 for valid species codes. This field must be completed if any information is entered.
LOC (km)	The location of the activity to the nearest 0.1 km upstream from the mouth.
COMMENTS	Comments on the activities success or failure, cost, etc.
START	Year the enhancement/management activity started.
FIN	Year the enhancement/management activity ended.
REF	The bibliographic reference number for the activity comment. A maximum of three references can be entered per comment. This field is required if any information has been entered. Use the space bar to separate references.

6.1.9 Screen H: Land Use/Water Use/Water Quality

The Land Use/Water Use/Water Quality screen is ninth in the series of screens available through the Stream Maintenance function. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (examine, update or add) from the Description screen.**

DFO PACIFIC REGION — SISS — DATE: 90 JAN 15
HABITAT MANAGEMENT — Contact: J.S. Mathers — Examine Userid: KPONTUS
ORIGINAL — Sooke R — 93-0300

H. LAND USE/WATER USE/WATER QUALITY

Act.	Description/Location	Ref(s)

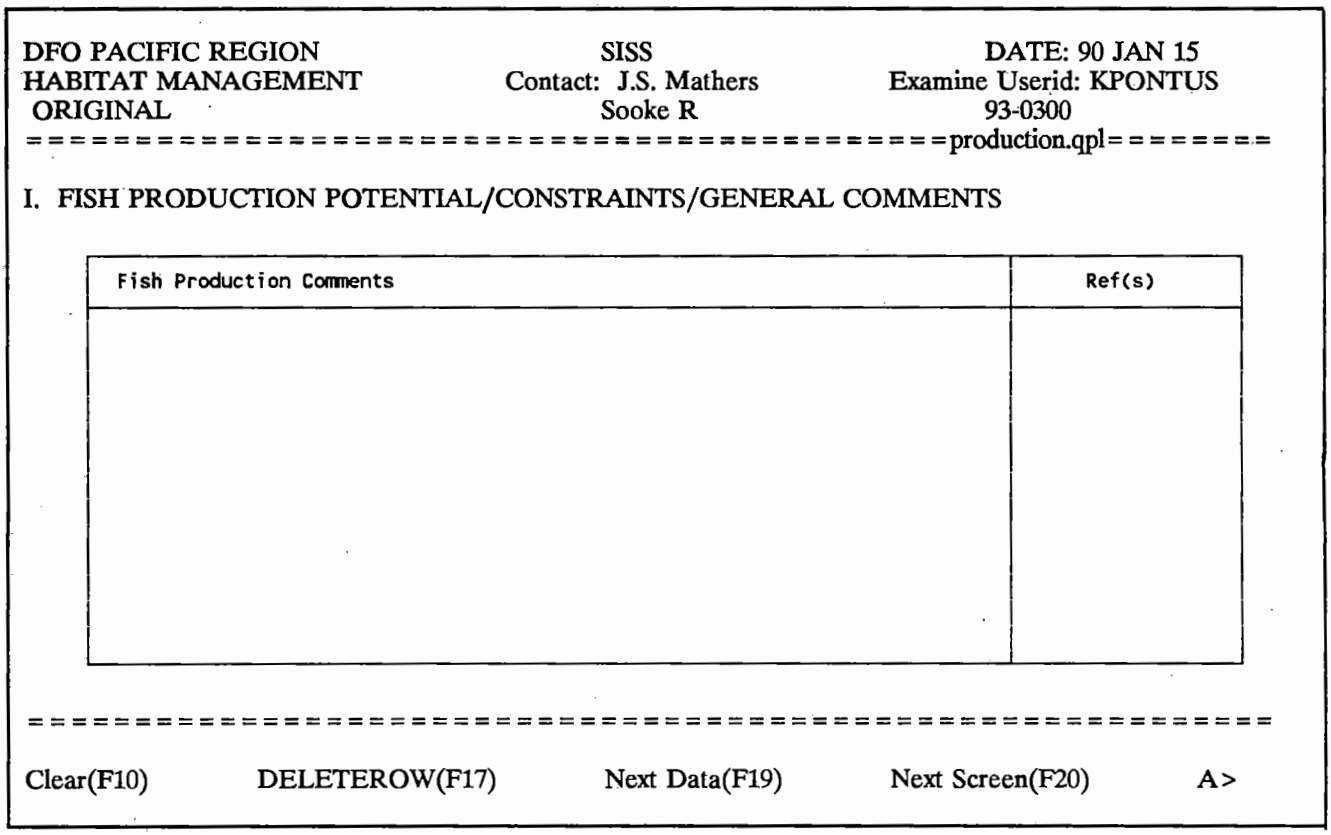
Clear(F10) DELETEROW(F17) Next Data(F19) Next Screen(F20) A>

Table 10: Field descriptions for Screen H: Land Use/Water Use/Water Quality

FIELD	DESCRIPTION
ACT	Land Use/Water Use/Water Quality activity code. See Appendix B6 for valid activity codes. This field must be completed if any Land Use/Water Use/Water Quality information is entered.
DESCRIPTION/ LOCATION	A description of the location and magnitude or extent of the operation and any known effects on fish production.
REF(S)	The bibliographic reference number of the Land Use/Water Use/Water Quality information entered. A maximum of three references can be entered per comment. This field must be completed if any information has been entered. Use the space bar to separate references.

6.1.10 Screen I: Fish Production Potential/Constraints/General Comments

The Fish Production Potential/Constraints/General Comments screen is tenth in the series of screens available through the Stream Maintenance Function. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (examine, update or add) from the Description screen.**



DFO PACIFIC REGION — SISS — DATE: 90 JAN 15
HABITAT MANAGEMENT — Contact: J.S. Mathers — Examine Userid: KPONTUS
ORIGINAL — Sooke R — 93-0300
production.qpl

I. FISH PRODUCTION POTENTIAL/CONSTRAINTS/GENERAL COMMENTS

Fish Production Comments	Ref(s)

Clear(F10) DELETEROW(F17) Next Data(F19) Next Screen(F20) A>

Table 11: Field descriptions for Screen I: Fish Production Potential/Constraints/General Comments

FIELD	DESCRIPTION
FISH PRODUCTION COMMENTS	Comments on fish production potential, such as habitat potential (eg. habitat above barriers), constraints to production (eg. high temperature, low flow), opportunities for restoration or enhancement, watershed sensitivity, quality of information to assess the above and need for inventory data collection.
REF(S)	The bibliographic reference number for the fish production comment. A maximum of three references can be entered per comment. This field must be completed if a comment has been entered. Use the space bar to separate references. Personal communications must be referenced.

6.1.11 Screen J/K: Fishery Officer Narrative and SIS Completed By

The Fishery Officer Narrative and Completed By screen (J/K) is the last screen in the series of Stream Maintenance Function screens. **To view this screen you must have selected Stream Maintenance from the Main Menu and an activity (examine, update or add) from the Description screen.** Note that the Date, Mode, Userid and Validation fields operate as described in the Description screen. Press the "**NEXT SCREEN**" **<F20>** function key to advance to the Description screen.

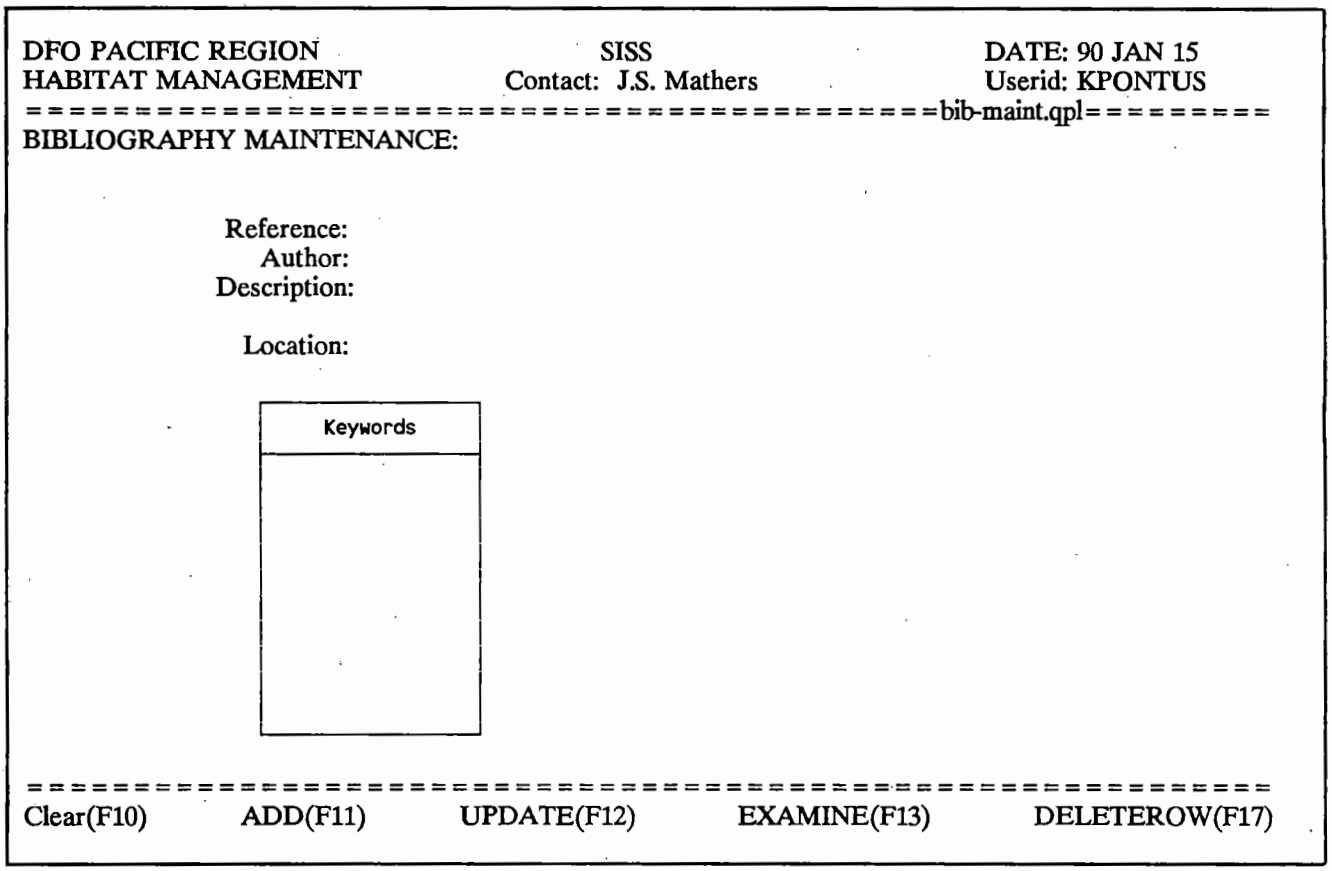
```
DFO PACIFIC REGION                SISS                    DATE: 90 JAN 15
HABITAT MANAGEMENT                Contact: J.S. Mathers   Examine Userid: KPONTUS
 ORIGINAL
==========================================complete.qpl==========
J. FISHERY OFFICER NARRATIVE

    Date Prepared:                                        Prepared by:

================================================================
K. SIS COMPLETED BY

                                                    YYYY/MM/DD
                    Completed By:                   Date:
                    Checked By:                     Date:
                    Last Updated By:                Date:
                                                    Sections:
                    Validated By:                   Date:/  /

================================================================
Clear(F10)      Next Data(F19)      Next Screen(F20)      A1(grad)    B    C    D>
```

Table 12: Field descriptions for Screen J/K: Fishery officer narrative/SIS Completed by

FIELD	DESCRIPTION
DATE PREPARED	The date the fishery officer narrative for this stream was prepared. Enter the date as YYYY/MM/DD
PREPARED BY	The name of the person that prepared the officer narrative.
COMPLETED BY	The name of the individual who completed the stream initial stream summary form. This field must be completed during the add function.
DATE	The date the original stream summary was completed. This field must be completed during the add function.
CHECKED BY	The name of the individual who checked the initial stream summary information. This is the Scientific Authority for a geographic area.
DATE	The date the initial stream summary was checked by a scientific authority. This field must be completed if an entry is made in the "Checked by" field.
LAST UPDATED BY	The name of the last individual to update the Stream summary. This field must be completed if any Stream Maintenance screens have been updated. The name of the last person to update the stream will be displayed below this field. A maximum of three names can be displayed in this manner.
SECTIONS	Display Only. A list of the sections that have been updated.
VALIDATED BY	The name of the last individual to have performed the Scientific Authority function on the stream displayed. Entries to this field are restricted to users with Scientific Authority priveleges.
DATE	Display Only. The date the data was last checked by a scientific authority.

6.2 Bibliography Maintenance.

The Bibliography Maintenance function is used to add, update or examine bibliography references used in the Stream Summary data form. **New references must be added through this function before they will be accepted in Stream Maintenance.** Use the add mode to add new references to the data base; update to change existing references; and examine to view previously entered references.



To begin, you must choose to work in either ADD, UPDATE, or EXAMINE mode. Select the function key which appears at the bottom of the screen which corresponds to the mode you wish to operate. In the screen header, the highlighted blank box next to the screen title will display the mode you have selected.. Only those function keys which are defined are included in the main menu line.

You can now ADD, UPDATE or EXAMINE bibliography information. Every bibliographic record is automatically assigned a unique reference number by the system. Each record is composed of 2 parts; the location code and the citation number of the reference. For example, a bibliography reference code of 29I-23 identifies the 23rd citation referenced in subdistrict 29I. See Table 13 for field descriptions of the bibliography maintenance screen. When you have finished your work, press the function key which corresponds to the mode in which you are operating to complete the process.

Table 13: Field descriptions for bibliography maintenance screen

FIELD	DESCRIPTION
REFERENCE	The unique bibliographic reference number for update or examine modes. If you are adding a new reference, type in subdistrict code and hit <RTN>. The system will automatically assign this record the next available citation number. If a reference covers more than one location it should only be assigned a reference number once.
AUTHOR	The Author(s) of the reference. See Appendix C for reference citing conventions. If the number of authors exceeds the space available in this field, list as many authors as possible and use the abbreviation et. al.
DESCRIPTION	The balance of the citation, ie., year, title, auxiliary information, name and location of publisher or name, volume and issue of journal and number of pages. See Appendix C for reference citing conventions.
LOCATION	The location code that describes the physical location of where the reference can be found. See Appendix B8 for valid location codes. More codes can be added to this list as required. For additions please contact the DFO Habitat Inventory Database Biologist (666-6683).
KEYWORDS	The keyword code that describes the contents of the reference. See Appendix B7 for a list of valid codes. More codes can be added to this list as required. For additions please contact the DFO Habitat Inventory Database Biologist (666-6683).

6.3 Print Streams

The Print Streams Parameter screen is one of two screens associated with the Print Streams function. It is displayed when you type the number corresponding to Print Streams in the Main Menu and provides you with a means of pinpointing a watershed code or printing stream summaries by geographic area.

DFO PACIFIC REGION SISS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Userid: KPONTUS
==========stream-parms.qpl===
PLEASE ENTER STREAM PRINT PARAMETERS IN ONE OF AREAS 1, 2, 3, OR 4:

1. D.F.O. Subdistrict:
2. M.O.E.P. Region:
3.
4. Stream Name

Watershed Code(s)

==========
DELETEROW(F17) SELECT(F18) Print Job(F19)

To print a stream summary report, enter information in one of the 4 geographic areas listed (see Table 14 for field descriptions) and press the SELECT function key (F18) to begin. The following message: **"*INFO searching"** will be displayed when the select key has been entered. Should you select a stream to print that does not exist on the database, the message **"Attention: No Streams Found will be displayed"**. If the stream does exist on the database the following message will be displayed:

Message: **"Do you want stream originals (y/n)?"**

> Enter Y if you want data that has been validated by a Scientific Authority, N for the most recent version of data (original or working).

After you have responded to this message the program will generate a screen containing a list of the stream names and watershed codes for the geographic area you have requested. Note: Watershed Code and Stream Name are table fields on this screen and can therefore be scrolled through using the up and down arrow keys. The following sample screen was generated when originals for subdistrict 12A were requested.

DFO PACIFIC REGION SISS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Userid: KPONTUS
streamparms.qpl

Watershed Code(s)	Stream Name(s)
90-0600-900	ICY C
90-1150-010	COCKATRICE C
90-4500	TANU R
90-4590	SHOAL C
90-4600	FULMORE R
90-4620	UNNAMED C
90-4700	UNNAMED C
90-4800-240	UNNAMED C
90-4800-650	UNNAMED C
90-4800-800	UNNAMED C
90-4800-994	UNNAMED C
90-4820	UNNAMED C
90-4830-100	UNNAMED C
90-4830-950	UNNAMED C
90-4840	UNNAMED C

Run Job(DO) DELETEROW(F17) Print Job (F19)

To delete a stream from the list, move the cursor to the stream you wish to remove and press **DELETEROW** <F17>.

At this point you can select **RUN JOB** by pressing the **<DO>** key or return to the Print Streams Parameter screen by pressing **<PF3>.**

Refer to the Submitting a Report section of this manual for further instructions.

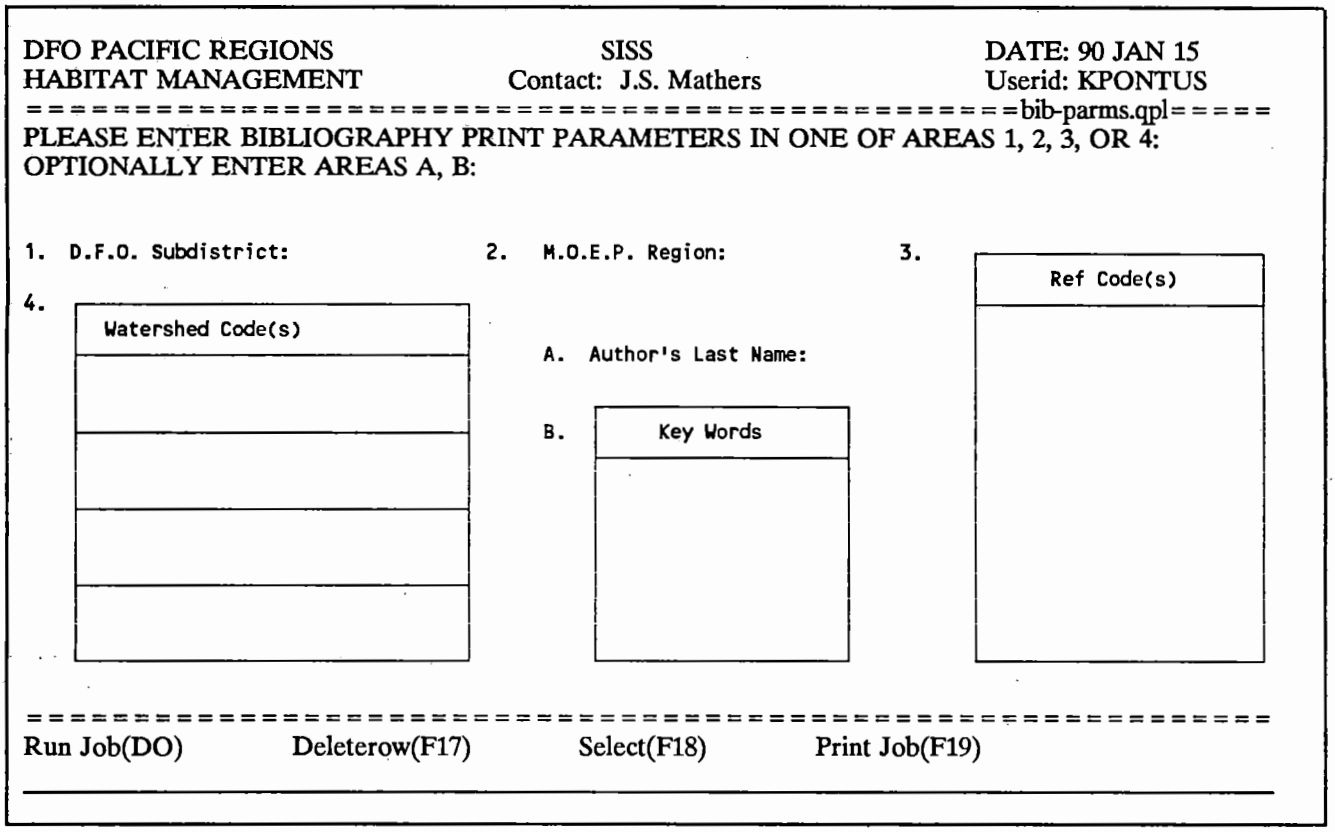
Table 14: Field Descriptions for Print Streams screen

The following field descriptions apply to the Print Streams Parameter screen. Field descriptions for the program generated screen can also be found below; however, note that the latter are table fields.

FIELD	DESCRIPTION
D.F.O. Subdistrict	The D.F.O. subdistrict code of the geographic area for which you want stream summaries. See Appendix B1 for a list of valid subdistrict codes.
M.O.E.P. Region	The M.O.E.P. region code of the geographic area for which you want stream summaries. See Appendix B2 for a list of valid M.O.E.P. codes.
Watershed Code	The Unique identifier of a stream as specified in the M.O.E.P. dictionary of stream codes. Streams can be identified for printing by individual watershed codes, eg., 98-4800, or a range of codes, eg., 98 98-4800. Use the return key to separate each entry in a list of individual watershed codes and a blank to separate entries in a range.
Stream Name	The stream name of the summary you wish to print. The name should be that found in the Gazetteer of Canada. Use the following conventions: R for River — eg. Salmon R C for Creek — eg. Beaver C S for Slough B for Brook G for Gulch There is no period after the waterway abbreviation.

6.4 Print Bibliographies

The Print Bibliographies Parameter screen is displayed when you type 4 on the Main Menu. It is used to print bibliographic reports by geographic area, reference code and author and/or keyword list within a geographic area. The menu line will now only display those keys which have been defined.



Enter either a DFO Subdistrict, MOEP Region, Watershed Code(s) or Reference code(s) to begin. Then if desired, enter an author's last name and/or a list of keyword codes and press the **SELECT** function key **(F18)**. The message **"searching"** will be displayed.

The program will then search the database for all references fitting your definition. When the references have been found the following message will be displayed.

Message: **"Alphabetical (Y/N)"**

Enter **Y** to have the references sorted in alphabetical order by author, **N** to have them numerically sorted by reference number.

After you have responded to the message, the reference numbers matching your definition will be displayed in the "Ref Code" field. Should you select a reference that does not exist on the database, the message **"Attention: No References Found"** will be displayed.

At this point you can return to the Print Bibliographies Parameter screen by pressing **<PF3>**, or print citations for some of the reference codes listed.

To delete a reference from the list, move the cursor to the reference you wish to remove and press **DELETEROW <F17>**. Note that Ref Code is a table field on this screen and can therefore be scrolled through using the up and down arrow keys.
When you are satisfied with the list, press RUN JOB (DO) to submit it for printing and refer to Section 8, Submitting a Report, for further instructions.

Table 15: Field descriptions for print bibliographies screen

FIELD	DESCRIPTION
D.F.O. SUBDISTRICT	The D.F.O. subdistrict code of the geographic area for which you want SISS bibliographic references. See Appendix B1 for a list of valid subdistrict codes.
M.O.E.P. REGION	The M.O.E.P. region code of the geographic area for which you want SISS bibliographic references. See Appendix B2 for a list of valid MOEP codes.
WATERSHED CODE	The Unique identifier of a stream as specified in the MOE dictionary of stream codes. Streams can be identified by individual watershed codes, eg., 98-4800, or a range of codes, eg., 98 98-4800. Use the return key to separate each entry in a list and a blank to separate entries in a range.
REF CODE(S)	The unique bibliographic reference number for a source of information used to complete a stream summary. It is composed of two parts: a location code (for DFO this is the subdistrict code) the reference relates to followed by the citation number of reference within the location.
AUTHOR'S LAST NAME	The last name(s) of the author of a bibliographic reference. Follow reference citing conventions described in Appendix C. Note: The spelling and punctuation of the author(s) last name must match that used when the reference was added to the database. If you are unsure of the exact spelling of the author's last name, enter the letters you know and add an asterisk, e.g., Jon*. The asterisk is a wild card, capable of expanding the scope of your query to all citations where the author's last name begins with the letters you have specified, the example would find all author's beginning with the letters jon.
KEY WORDS	Enter the keyword codes that describe the contents of the references you are interested in. See Appendix B7 for valid key word codes.

6.5 Stream Query

Stream Query provides a means of searching a geographic area for a subset of streams with a set of user-defined characteristics. Characteristics can be selected from sections B through H of the SIS data form. The Stream Query Parameters screen is one of two screens associated with the Stream Query function. It is displayed when you type the number corresponding to stream query in the main menu.

In the following sample query parameters screen, the query selection was: all of the streams in subdistrict 20 where a falls is a barrier to all salmon; coho or steelhead are distributed in the system; the mean coho escapement is greater then 100 and less than 10,000; and a forestry activity is occurring. See Table 16 for field descriptions.

Note: Queries operate as 'and' between sections and 'or' between multiple values in a field except where explicitly displayed on the stream query parameters screen (B. Barrier Height and E. Escapement Mean).

Enter a DFO Subdistrict, MOEP region or watershed code and the desired characteristics (if any) and press the SELECT function key <F18>.

DFO PACIFIC REGION SIS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Userid: KPONTUS
==========stream-query.qpl
PLEASE ENTER GEOGRAPHIC AREA IN ONE OF AREAS, 1, 2 OR 3 AND THEN ENTER OPTIONAL QUERY PARAMETERS IN AREAS B THROUGH H:

1. D.F.O. Subdistrict: 20
2. M.O.E.P. Region:
3.

Watershed Code(s)	

B: Barrier: F
Height: and
Species: AO
C: Flow Ctrl:
D: Species: CO ST
E: Species: CO
Mean: >100 AND <10000
F: Species:
JFFMMAAMMJJJJAASSOONNDD
Migration:
Spawning:
Incubation:
Rearing:
G: Activity:
Species:
H: Activity: FO

==========
Clear(F10) DELETEROW(F17) Select(F18)

After you have pressed Select, the program will then search the database for streams with the attributes you have specified. The message **"Stream Query Started (expect an average wait of 2 min)".**

When the search has been completed, a new screen displaying the stream names and watershed codes for the streams fitting your query description will be displayed. The following sample screen was generated for the sample subdistrict 20 query.

DFO PACIFIC REGION SIS DATE: 90 JAN 15
HABITAT MANAGEMENT Contact: J.S. Mathers Userid: KPONTUS
streamparms.qpl

Watershed Code(s)	Stream Name(s)
93-0300	SOOKE R
93-1000	SAN JUAN R

Run Job(DO) Deleterow(F17) Print Job(F19)

At this point you can return to the Stream Query parameters screen by pressing (PF3) or print summaries for some or all of the streams listed. To delete a stream from the list, move the cursor to the stream you wish to remove and press **DELETEROW (F17)**.

Note: Watershed Code and Stream Name are table fields on this screen and can therefore be scrolled through using the up and down arrow keys.

When you are satisfied with the list, press **RUN JOB <DO>** to submit the report for printing and refer to Section 8, Submitting a Report, for further instructions.

Table 16: Field descriptions for stream query screen

FIELD	DESCRIPTION
1. D.F.O. SUBDISTRICT	The D.F.O. subdistrict code of the geographic area you wish to query. See Appendix B1 for a list of valid subdistrict codes.
2. M.O.E.P. REGION	The M.O.E.P. region code of the geographic area you wish to query. See Appendix B2 for a list of valid M.O.E.P. codes.
3. WATERSHED CODE	The Unique identifier of a stream as specified in the M.O.E.P. dictionary of stream codes. Streams can be identified for printing by individual watershed codes, eg., 98-4800, or a range of codes, eg., 98 98-4800. Note: Use the return key to separate each entry in a list of watershed codes and a blank to separate entries in a range.
B. BARRIER	A barrier to fish migration. See Appendix B3 for valid barrier codes. A maximum of three barrier codes can be entered. Note: Use the space bar to separate codes when more than one is entered.
B. HEIGHT AND	Height of the barrier to the nearest 0.1 meters. Height ranges can be constructed with the use of query operators eg., Height >2 and <10. Note: Query operators include >, <, >=, and <=.
B. SPECIES	Species codes of species that are obstructed by the barrier. A maximum of five species may be entered. See Appendix B4 for valid species codes. Note: Use the space bar to separate species codes.
C. FLOW CTRL	The presence or absence of a dam on the system. Acceptable entries are: Y = Yes, N = No, and Blank = unknown.
D. SPECIES	Species code for distribution data. A maximum of five codes may be entered. See Appendix B4 for valid species codes. Note: Use the space bar to separate species when more than one code is entered.
E. SPECIES	Species code for escapement data. A maximum of five codes may be entered. See Appendix B4 for valid species codes. Note: Use the space bar to separate species when more than one code is entered.

Table 16 cont'd: Field descriptions for stream query screen

FIELD	DESCRIPTION
E. MEAN AND	The mean escapement recorded. Mean ranges can be constructed with the use of query operators eg. Mean>200 and <1000. Note: Query operators include >, <, >=, and <=.
F. SPECIES	Species codes for life history timing data. A maximum of five codes may be entered. See Appendix B4 for valid species codes. Note: Use space bar to separate species codes.
F. MIGRATION	Place an "X" for occurrence under the months of the year that the stream summary should have migration activity information.
F. SPAWNING	See migration.
F. INCUBATION	See migration.
F. REARING	See migration.
G. ACTIVITY	Enhancement/Management activity code. See Appendix B5 for valid codes. A maximum of three codes may be entered. Note: Use the space bar to separate codes when more than one is entered.
G. SPECIES	Species codes for the Enhancement/Management information. A maximum of five species codes may be entered. See Appendix B4 for valid species codes. Note: Use the space bar to separate codes when more than one is entered.
H. ACTIVITY	Land Use/Water Use/Water Quality activity codes. A maximum of three codes may be entered. See Appendix B6 for valid codes. Note: Use the space bar to separate codes when more than one is entered.

6.6 Scientific Authority

The Scientific Authority function is used to validate working copy stream summaries on an individual stream or DFO subdistrict basis. It is accessed through the Main Menu and will only be displayed as an option on privileged accounts. In DFO, scientific authority privileges have been given to Divisional Habitat Inventory Biologists and the Habitat Inventory Coordinator.

When a stream is first added to the database it is referred to as a "**Work Copy**" and these words appear on all Stream Maintenance screens containing data. Subsequently, when a Scientific Authority validates this summary through SISS, it becomes an "**Original**" and the word "**Original**" replaces the words "**Work Copy**" on all Stream Maintenance screens. A summary becomes a working copy again when it is updated. At this point the words "**Work Copy**" appear on the Stream Description screen (A), the Completed by/ Checked by screen (J/K) and any other screens where updates have been made. In addition a list of the updated screens is displayed beside the "**Last Updated By:**" field.

Note: Individual streams can also be validated while in UPDATE mode by entering a name in the "**Validated by**" field in the Stream Maintenance function, however, access to this field is restricted to the priveleged accounts listed above.

The Scientific Authority function screen is displayed when option 6 is selected from the Main Menu within accounts which have access to this function.

```
DFO PACIFIC REGION                SISS                    DATE: 90 JAN 15
HABITAT MANAGEMENT                Contact: J.S. Mathers   Userid: KPONTUS
==========================================display_sau.qpl===

PLEASE ENTER STREAM VALIDATION PARAMETERS IN EITHER OF AREAS 1 OR 2, AND
COMPLETE "VALIDATED BY" FIELD.

1.  D.F.O. Subdistrict:          2.  Watershed Code(s)
                                     |                |
                                     |                |
                                     |                |
                                     |                |
                 1989/09/13          |                |
Validated by     Date                |                |
                                     |                |

==========================================================
S.A. Update
_____________________________________________________________
```

Enter the DFO subdistrict or watershed code for the stream(s) you would like to validate and the Scientific Authority's name. Press (**PF1**) to move cursor to command line at the bottom of the screen and then press "S" to begin the validation.

The following message will be displayed

Message: **"Perform Validation [Y/N]"**

Enter **Y** to begin validating and **N** to cancel the process. If you choose to validate stream(s) the following message will appear:

Message: **"Attempting to reserve stream (stream number)"**

The system will then attempt to reserve the streams you have specified. If there are no **"Work Copy"** streams available meeting your specifications or a stream within the list you have entered is being updated, the following message will appear.

Message: **"There are No Reservable, Documented Streams Available [Hit Return]".**

When this is the case there are either; no work copies to validate or there is no documented stream for the stream number you have entered. However, if streams are available, the validation process will begin. When the validation is complete, a message indicating the number of streams validated will be displayed eg.,

Message: **"[1] Stream(s) Validated [Hit Return]".**

At this point you can return to the Main Menu by pressing **<PF3>.**

Table 17: Field descriptions for scientific authority screen

FIELD	DESCRIPTION
SUBDISTRICT	The DFO subdistrict you wish to validate. See Appendix B1 for a list of valid subdistrict codes.
WATERSHED CODE	The unique identifier of a stream as specified on the MOE dictionary of stream codes. Streams can be identified for validating by individual watershed codes, e.g., 98-4800, or a range of codes, e.g., 98 98-4800. Note: Use the return key to separate each entry in a list of watershed codes and a blank to separate entries in a range.
VALIDATED BY	The name of the Scientific Authority responsible for validating data.

7.0 SUBMITTING A REPORT

After you have completed the selection criteria on either the Print Streams Parameters (p. 6-21), Print Bibliographies Parameter (p.6-24) or Stream Query Parameter (p. 6-26) screens and pressed the **RUN JOB** function key, you will be prompted for information on how the report is to be run, where it is to be printed and what it is to look like. The following is a summary of the messages that will be displayed and the responses open to you. The messages are the same for all three functions. Note that in some cases the response is dictated by you.

After you have pressed the **RUN JOB** function key **(DO)** the following message will be displayed.

Message: **"Enter Report Name (No Spaces, or ?)"**

Enter a name for your report and make a note of it if you plan to print the report locally on your office printer.

Note: The name must be fewer than 8 characters and can not include any blank spaces, asterices or question marks.

When you have specified a name the program will ask:

Message: **"Is this report for the laser printer (Y/N)?"**

Enter Y if you want the report printed on the DFO regional laser printer, N if you will be printing the report on your office printer. Reports printed on the DFO laser printer are delivered to the DFO ITSD office. If you can not pick up a report from this office, please notify the Habitat Inventory Data Base Biologist (666-6683) or Habitat Inventory Coordinator (666-7015).

If you have elected to print your report on the laser printer, the next message will be displayed, if not, skip this message and continue.

Message: **"Do you Want the Report Punched (Y/N)?"**

Enter Y if you want the report printed on three hole punched paper. Enter N if you want the report printed on unpunched paper. Specify punched paper for speedy print jobs.

After you have specified the type of paper for laser printer jobs or entered N at the prompt for the laser, the following will be displayed:

Message: **"Submit this report to a batch queue? enter(Y/N)"**

Enter Y.

The next message will be:

Message: **"Should this job run in sequence (Y/N) [hit return]".**

Enter Y

Enter Y for large print jobs, e.g., subdistrict or if you are submitting several reports close together; N for smaller jobs submitted in isolation.

Following this you will be asked to select when you want the report to run:

Message: **"Day Batch (Y/N)?"**

Enter Y to run small reports before six o-clock on the day of submission, Enter N for all large reports.

At this point you will receive a confirmation message indicating that the job has been successfully submitted. The system will then automatically redisplay the Main Menu so that you can continue with any SISS function.

If you have submitted a report to the laser printer this is the last step in the submission process. A job completion message will be displayed on your screen when the report is ready for pick-up. The hard copy output now has the "1" of page 1 (top RH corner of the SIS report) in bold to assist in distinguishing the first page from others.

If you have elected to print the report locally, you must return to either the Print Streams or Print Bibliographies function after you have received the job completion message. When the Print Streams parameters screen is displayed, press the **PRINT JOB** function key **(F19)**. The following message will be displayed.

Message: **"Enter Report Name (no spaces)"**

Enter the name you gave the report (see above).

Message: **"Enter Printer type Toshiba or Dec (T/D):"**

Enter D if you have a DEC printer; enter T for all other printer types you have access to.

After you have entered a name you will be asked for:

Message: **"Pitch [10,12,16]"**

Enter **16** to print stream summary reports in condensed pitch, **12**, to print bibliography reports in standard pitch.

The next message will be:

Message: **"Mode [d-draft, b-bold or n-nearletter quality]"**

Enter **d** for draft. Printers must be in draft mode to print in condensed pitch.

The report will then be printed. See Appendix D for a sample of a stream summary report.

APPENDIX A

STREAM INFORMATION SUMMARY FORM

DFO/MOEP FISH HABITAT INVENTORY AND INFORMATION PROGRAM
STREAM INFORMATION SUMMARY

A. DESCRIPTION

Stream Name:	
Local Name:	
Watershed Code:	

D.F.O. Division					
D.F.O. District No.		Subdist.		Stat.Area	
M.O.E.P. Region		Management Unit			

Topographic (1:50K) Map	
B.C.G.S. (1:20K) Map	

Tributaries	Code

U.T.M. Mouth			
Lat./Long. Mouth	° ' "	° ' "	
Mainstem Length	km	Ref. No.	
Watershed Area	km^2	Ref. No.	

Location:

Gradient Class/Location (km U/S from mouth)				
0 - .5%	.5 - 2%	2 - 5%	5 - 10%	> 10%

Comments:

	Ref. No.

B. OBSTRUCTIONS TO MIGRATION

Barrier (Type)	Height (meters)	Location (km U/S)	Impassable to (species)	COMMENTS	Ref. No.

C. FLOW

Flow Control		Water Survey of Canada (WSC) Flow Gauge		WSC Station No. 1	
No. 2		No. 3		No. 4	

Comments:	Ref. No.

D. DISTRIBUTION SUMMARY

Species	Watershed Distribution	Ref. No.

E. ESCAPEMENT SUMMARY

Species	Escapement			Maximum Recorded Escapement	Ref. No.	Management Target Escapement	Ref. No.
	Mean	Period of Record	Ref. No.				

Comments:	

F. LIFE HISTORY TIMING

Species	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Migration												
	Spawning												
	Incubation												
	Rearing												
	Migration												
	Spawning												
	Incubation												
	Rearing												

Comments:	Ref. No.

G. ENHANCEMENT/MANAGEMENT ACTIVITIES IN WATERSHED

Type of Activity	Species	Location (km U/S)	Comments	Period of Operation Start/Finish	Ref. Number
				/	
				/	
				/	
				/	
				/	
				/	
				/	
				/	

H. LAND USE/WATER USE/WATER QUALITY

Activity	Description/Location	Ref. No.

I. FISH PRODUCTION POTENTIAL/CONSTRAINTS/GENERAL COMMENTS

J. FISHERY OFFICER NARRATIVE

Date Prepared:	Prepared By:

K. SIS COMPLETED BY

Completed by:	Date:
Checked by:	Date:

REFERENCE LIST

Ref. No.	Reference
	Author:
	Description:
	Location: Key Words:
	Author:
	Description:
	Location: Key Words:
	Author:
	Description:
	Location: Key Words:
	Author:
	Description:
	Location: Key Words:
	Author:
	Description:
	Location: Key Words:
	Author:
	Description:
	Location: Key Words:

APPENDIX B

CODES

B.1 DFO Subdistrict Codes

Subdistrict	Name
1	MASSET
2E	SANDSPIT
2W	WEST COAST Q.C.I.
3A	LOWER-NASS
3B	UPPER NASS
4A	SKEENA
4B	TERRACE
4C	HAZELTON
4D	SMITHERS
5	GREENVILLE-PRINCIPE
6N	KITIMAT
6S	BUTEDALE
7	BELLA BELLA
8	BELLA COOLA
9	RIVERS INLET
10	SMITH INLET
11	SEYMOUR INLET
12A	ALERT BAY
12B	PORT HARDY
13	CAMPBELL RIVER
14N	COMOX
14S	QUALICUM BEACH
15	POWELL RIVER
16	PENDER HARBOUR
17	NANAIMO/LADYSMITH
18	DUNCUN
19	VICTORIA/SAANICH
20	SOOKE
22	NITINAT
23	PORT ALBERNI
24	TOFINO
25	TAHSIS
26	KYUQUOT
27	QUATSINO SOUND
28A	VANCOUVER
28B	SQUAMISH
29A	STEVESTON
29B	SURREY
29C	COQUITLAM
29D	MISSION
29E	CHILLIWACK
29F	LILLOOET
29G	WILLIAMS LAKE
29H	QUESNEL
29I	PRINCE GEORGE
29J	CLEARWATER
29K	SALMON ARM
110	YUKON-ARCTIC
120	YUKON SOUTH/NORTH B.C.
130	ALSEK-TAKU

B.2 MOEP Regions/Management Units

Region 1	VANCOUVER ISLAND
Region 2	LOWER MAINLAND
Region 3	THOMPSON-NICOLA
Region 4	KOOTENAY
Region 5	CARIBOO
Region 6	SKEENA
Region 7	OMINECA-PEACE
Region 8	OKANAGAN

Maps showing the Management Units within each Region can be found in "British Columbia Sport Fishing Regulations Synopsis".

B.3 Barrier Codes

BD	BEAVER DAM
C	CASCADE
CV	CULVERT
D	DAM
F	FALLS
NB	NO BARRIER
R	ROCK
X	LOG JAMS

B.4 Species Codes

AC	ARCTIC CHAR
ACB	BROOK TROUT (ANAD)
ACT	ANAD CUTTHROAT
ADV	DOLLY VARDEN (ANAD)
AF	ALL SPECIES
AGB	BROWN TROUT (ANAD)
AL	ARCTIC LAMPREY
AO	ALL SALMON
AS	ATLANTIC SALMON
ASM	ARCTIC SMELT
BB	BURBOT
BCB	BLACK CRAPPIE
BH	CATFISH NERAL
BKH	BLACK BULLHEAD
BL	WEST'N BROOK LAMPREY
BMC	BRASSY MINNOW
BNH	BROWN BULLHEAD
BS	BRASS/SUNFISH (GEN)
BSB	BROOK STICKLEBACK
BSU	BRIDGELIP SUCKER
BW	BROAD WHITEFISH
C	MINNOWS (GENERAL)
CA	ARCTIC CISCO
CAL	ALEUTIAN SCULPIN
CAS	PRICKLY SCULPIN
CB	BERING CISCO
CBA	MOTTLED SCULPIN
CBC	CHUB (GENERAL)
CC	SCULPINS (GENERAL)
CCG	SLIMY SCULPIN
CCN	SHORTHEAD SCULPIN
CH	CHINOOK SALMON
CL	LAKE HERRING
CLA	STAGHORN SCULPIN
CM	CHUM SALMON
CMC	CHISELMOUTH CHUB
CO	COHO SALMON
CP	CARP
CRH	TORRENT SCULPIN
CRI	SPOONHEAD SCULPIN
CS	LEAST CISCO
CSU	LARGESCALE SUCKER
CT	CUTTHROAT TROUT
DC	DACE
DV	DOLLY VARDEN
EB	BROOK TROUT
ESC	EMERALD SHINER
EU	EULACHON
FDC	FINESCALE DACE
FHC	FLATHEAD CHUM
GAM	MOSQUITO FISH
GB	BROWN TROUT
GC	GOLDFISH
GE	GOLDEYE
GR	GRAYLING ARCTIC
GSG	GREEN STURGEON
HW	HUMPBACKED WHITEFISH
IN	INCONNU
KO	KOKANEE
L	LAMPREYS (GENERAL)
LDC	LEOPARD DACE
LKC	LAKE CHUB
LMB	LARGEMOUTH BASS
LNC	LONG NOSE DACE
LSM	LONGFIN SMELT
LSU	LONGNOSE SUCKER
LT	LAKE TROUT
LW	LAKE WHITEFISH
MSU	NORTHERN MTN SUCKER
MW	ROCKY MTN WHITEFISH
NF	NO FISH
NP	NORTHERN PIKE
NSC	NORTHERN SQUAWFISH
P	PERCH (GENERAL)
PCC	PEAMOUTH CHUB
PDC	NORTHERN PEARL DACE
PK	PINK SALMON
PL	PACIFIC LAMPREY
PMB	PUMPKINSEED FISH
PW	PYGMY WHITEFISH
RB	RAINBOW TROUT
RDC	NORTH'N REDBELLY DACE
RL	RIVER LAMPREY
RSC	REDSIDE SHINER
RW	ROUND WHITEFISH
SA	SALMON (GENERAL)
SB	STICKLEBACKS (GEN)
SDC	SPECKLED DACE
SFL	STARRY FLOUNDER
SG	STURGEONS (GENERAL)
SH	AMERICAN SHAD
SK	SOCKEYE SALMON
SM	SMELTS (GENERAL)
SMB	SMALLMOUTH BASS
ST	STEELHEAD
STC	SPOTTAIL SHINER
SU	SUCKERS (GENERAL)
TC	TENCH
TP	TROUTPERCH
TR	TROUT
TSB	3 SPINE STICKLEBACK
WF	WHITEFISH (GENERAL)
WP	WALLEYE
WSG	WHITE STURGEON
WSU	WHITE SUCKER
YCT	YELLOWSTONE CUT
YP	YELLOW PERCH

B.5 Enhancement/Management Activity Codes

BX	INCUBATION BOX
CC	CREEL CENSUS
CF	COUNTING FENCE
CH	SPAWNING CHANNEL
CO	COLONIZATION
EI	IMPROVE ESTUARY
EN	ENHANCEMENT ACTS
FC	FLOW CONTROL
FP	MULTIPLE STRATEGY
FS	FISH SAMPLING
FT	LAKE FERTILIZATION
FW	FISHWAY
HC	CHANNEL/HATCHERY
HX	MUTLIPLE METHODS
HY	HATCHERY
JH	JAPANESE HATCHERY
LJ	LOG JAM REMOVAL
MR	MARK RECOVERY
OR	BARRIER REMOVAL
SC	SIDE CHANNEL
SI	STREAM IMPROVEM'T
TR	TRANSPLANT
TT	TRAP/TRUCK

B.6 Land Use/Water Use/Water Quality Codes

AG	AGRICULTURE
DA	DAMS
FO	FORESTRY
IP	INDUSTRIAL PROCESSING
LD	LINEAR DEVELOPMENT
LU	LAND USE
MI	MINING
PR	PARKS
RE	RESERVES
UD	URBAN DEVELOPMENT
WQ	WATER QUALITY
WW	WATER WITHDRAWAL

B.7 Keyword Codes

Species -	See Appendix B4
Life Phase -	Migration (M) Spawning (S) Incubation (I) Rearing (R) includes Overwintering
Physical Habitat -	Physical habitat (PY) Flow (FL) Gradient (GA) Obstructions (OB) Substrate (SE) Morphology (MO) Temperature (TE)
Water Quality -	Water Quality (WQ) Suspended solids (SS) Nutrients (NU) pH (pH) Contaminants (CN)
Land Use/ - Water Use	Land Use (LU) Water Use (WU) Urban Development (UD) Mining (MI) includes placer, base, metal, coal Dams (DA) Linear Development (LD) Industrial Processing (IP) Agriculture (AR) Effluent Dishcarge (ED) Landfill (LF) Sanitary Sewage (SW) Storm Sewage (SW) Parks (PR) Water Withdrawal (WW) Reserves (RE)
Enhancement -	Enhancement (EN)
Study Type -	Fish Sampling (FS) Population Sampling (PS) Habitat Sampling (HS)

B.8 Location Codes

A	DFO - REGIONAL LIBRARY - VANCOUVER
AA	MOE - REGION 6 - QUEEN CHARLOTTE ISLANDS
B	DFO - HABITAT MANAGEMENT DIVISION - VANCOUVER
BB	EPS - REGIONAL OFFICE - VANCOUVER
C	DFO - SALMONID ENHANCEMENT PROGRAM - VANCOUVER
CC	WATER SURVEY CANADA - VANCOUVER
D	DFO - FRASER R., NORTHER B.C. YUKON DIVISION - NEW WEST
DD	SEP - HATCHERY - NANAIMO
E	DFO - DISTRICT 1 - KAMLOOPS
EE	MALASPINA COLLEGE - NANAIMO
F	DFO - DISTRICT 10 - WHITEHORSE
FF	LANDS, PARKS AND HOUSING - VICTORIA
G	DFO - SOUTH COAST DIVISION - NANAIMO
GG	MINISTRY OF FORESTS - VICTORIA
H	DFO - NORTH COAST DIVISION - PRINCE RUPERT
HH	SNOOTLI HATCHERY - BELLA COOLA
I	DFO - DISTRICT 7 - KITIMAT
II	MACMILLAN BLOEDEL - VANCOUVER
J	DFO - PACIFIC BIOLOGICAL STATION - NANAIMO
JJ	F.F.I.P. - VANCOUVER
K	DFO - WEST VANCOUVER LABORATORY
KK	DFO - DISTRICT 9 - QUEEN CHARLOTTE CITY
L	DFO - IOS - SIDNEY
LL	SIMON FRASER UNIVERSITY - VANCOUVER
M	MOE - FISHERIES BRANCH - VICTORIA
N	MOE - PLANNING AND ASSESSMENT BRANCH - VICTORIA
NA	NOT APPLICABLE
NN	B.C. HYDRO LIBRARY - VANCOUVER
O	MOE - REGION 1 - NANAIMO
P	MOE - REGION 2 - SURREY
PP	SEP - DEEP CREEK HATCHERY - TERRACE
Q	MOE - REGION 3 - KAMLOOPS
QQ	CEDP - HATCHERY - TERRACE
R	MOE - REGION 3 - PENTICTON
S	DFO - SUBDISTRICT (INCLUDED IN REF. NO)
SS	CEDP/MOEP TOBBOGAN CREEK HATCHERY - SMITHERS
T	MOE - REGION 5 - WILLIAMS LAKE
U	MOE - REGION 4 - CRANBROOK
UU	UNIVERSITY OF BRITISH COLUMBIA - VANCOUVER
V	MOE - REGION 4 - NELSON
W	MOE - REGION 5 - PRINCE GEORGE
X	MOE - REGION 6 - SMITHERS
Y	MOE - REGION 6 - TERRACE
YY	SEP - HATCHERY - KITIMAT
Z	MOE - REGION 5 - FT. ST. JOHN

APPENDIX C

REFERENCE CITING CONVENTIONS

C.1 A Suggested Standard System for Referencing Information Sources

A proper reference, or citation, contains sufficient information to establish that the reference is unique and to enable the reader to access that reference by one or more means. The general format is:

AUTHOR(S) (or EDITOR(S)/CORPORATION(S)/INSTITUTION(S)/AGENCY(IES)). YEAR. TITLE. AUXILIARY INFORMATION. NAME AND LOCATION OF PUBLISHER OR NAME, VOLUME, AND ISSUE OF JOURNAL. NUMBER OF PAGES.

Obviously, there will be departures from this format. In some cases, there will be insufficient information to provide a full citation. In other cases, such as memoranda, additional information can be provided.

Details regarding this format are given below, and examples appear on the following pages.

AUTHOR(S) (OR EDITOR(S)/CORPORATION(S)INSTITUTIONS(S)/AGENCY(IES))

The primary reference is to the author(s) of publications, reports, memoranda, etc. The first author's initials are written after the last name; subsequent author's initials are written before the last name (example la). Use the name(s) of author(s) of government, consultant and other reports when these are indicated on the reports (examples 4a and 5b). When the author(s) name(s) is not given, use the name of the institute or agency basically responsible for the report (example 4b and 5a). When several agencies have similar names and confusion could result, indicate the author (example 2a) and editor of a book by non-specified authors (example 2b); the author of a section of a book edited by someone (example 2c); or the anonymous author or editor (example 2d). The Name(s) of author(s)/(etc.) is followed by a period.

YEAR

The year of publication follows name of author or institution. Use "N.D." when date of publication is not given. The abbreviation "In prep." is placed after the title (or after auxiliary information) if the document has not yet been published or released.

TITLE

Self explanatory. Capitalization is restricted for first words and names of authors, agencies, companies and journals; other words, including book and report titles are not capitalized. Only scientific names in Latin are underlined.

For citations of consultant reports indicate the client for whom the report was prepared (example 5c).

NAME AND LOCATION OF PUBLISHER OR NAME, VOLUME, AND ISSUE OF JOURNAL

Indicate name of publisher and place of publication; the city of publication is sufficient when it is well-known (example 2d). Otherwise indicate province, state or country (example 5a).

Abbreviations for scientific journals must follow World List of Periodicals (examples 1a and 1b). If a journal has both a volume and an issue number, then both are cited (example 1b).

The Reference must include catalogue or call number of publication if this is normally used by the government agency or institute issuing the publication (example 3a).

NUMBER OF PAGES

The number of pages are indicated for the whole book (examples 2a and 2b) or for just the specific section (example 2c). Use "n.p." when publication has no numbered pages (example 3b).

C.2 Examples of Recommended Format for Report References

1. Journals

a) Fisher, D.W., and G.S. Davies. 1973. An approach to assessing environmental impacts. J. Env. Mgmt. 1:207-227.

b) Stewart, R.W., and J.R. Bider. 1974. Reproduction and survival of ditch-dwelling muskrats in southern Quebec. Can. Field Nat. 88(4):420-436.

2. Books and Parts of Books

a) Williams, E.J. 1959. Regression analysis. John Wiley and Sons Inc., New York. 214 pp.

b) Munn, R.E. (ed.). 1975. Environmental impact assessment: principles and procedures. SCOPE report 5. SCOPE Secretariat, Paris. 160 pp.

c) Widman, G.L. 1977. Environmental law and mining. P. 97-100 in J.L. Thames (ed.). Reclamation and use of disturbed land in the southwest. Univ. Arizona Press, Tucson. 682 pp.

d) Anonymous. 1977. The milepost (All-the north travel guide). Alaska Northwest publ. Co., Anchorage. 498 pp.

3. Occasional Publications

a) Walters, C.J., R. Hilborn, E. Ogus, R.M. Peterman, and J.M. Stander. 1974. Development of a simulation model of mallard duck populations. Canadian Wildlife Service Occ. Paper 20. Information Canada Cat. CW69-1/20. 34 pp.

b) Canadian Wildlife Service. 1973. Red Fox. Hinterland Who's Who Services. Information Canada Cat. CW69-4/5. n.p.

c) Ross, J.H. 1974. Quantative aids to environmental impact assessment, Lands Directorate, Environment Canada Occ. Paper No. 3. 31 pp.

4. Government Reports

a) Lysyk, K.M., Edith E. Bohmer, and W.L. Phelps, 1977. Alaska highway pipeline inquiry. Supply and Services Canada, Ottawa. 171 pp.

b) British Columbia Resource Analysis Branch. 1977. Aquatic system inventory and analysis. Victoria. 53 pp.

c) Water Survey of Canada. 1974. Historical streamflow summary, British Columbia: to 1973. Ottawa. 694 pp.

d) Water Quality Branch, Environment Canada. 1974. Water quality data, British Columbia: 1961-1971. Ottawa. n.p.

e) Smith, I. 1969. The effects of the Libby Dam upon wildlife resources of the east and west Kootenay. Wildl. Mgmt. Div. Rep., British Columbia Fish and Wildlife Branch, Victoria.

f) Linzon, S.N. 1973. How air pollution affects vegetation. Ontario Ministry of Environment, Toronto. 14 pp.

5. Consultant Reports

a) Environmental Research and Technology Inc. 1977. Air quality and climatic effects of the proposed Hat Creek project. Appendix E: climatic review. E.R.T. Document P-5074. Westlake Village, California. ii + 81 pp.

b) Hubbard, W.F., and M.A.M. Bell. 1977. Reclamation of lands disturbed by mining in mountainous and northern areas: a synoptic bibliography and review relevant to British Columbia and adjacent areas. Biocon Research Ltd., Victoria, B.C. 250 pp + addenda.

c) Olmsted, W.R., M. Whelan, and G.A. Vigers. 1980. 1979 investigations of fall spawning chinook salmon (Oncorhyncus tshawytscha) Nechako and Quesnel/Horsefly rivers, B.C. Prepared by E.V.S. Consultants Ltd. North Vancouver for Department of Fisheries and Oceans, Fisheries Operations. January, 1980. xiii + 85 pp + appendices I to VIII.

6. Theses and Dissertations

a) Gunn, J.M. 1976. Algae as an energy source for the omnivorous bullhead Ictalutus nebulosus (le Seuer) on the Ottawa River. M.Sc. thesis, Univ. Ottawa. 88 pp.

7. Unpublished Memoranda, Letters, Papers and Data.

a) Blachut, S. 1986. Nechako Brainstorming Session. Memo from S. Blachut, Dept. of Fish. and Oceans to distribution within Dept. of Fish and Oceans. Privileged. File 5430-85-K95. March 7, 13 pp.

b) Bates, D.V. 1977. Comments on report on public health considerations relative to the Hat Creek project. Memo. from consultant to Ebasco Services to Canada Ltd., Dec. 1. 7 pp + addenda.

c) O'Riordan, J. 1977. B.C. Hydro Hat Creek development. Memo. from Environment and Land Use Committee Secretariat to Coal Guidelines Steering Committee, Nov. 11. 1 p.

d) British Columbia Parks Branch. 1977. Unpublished park use data. Victoria.

e) Stewart, A.C. 1975. Winter survey report 1974/75. Unpublished report to Resource Analysis Unit, Environment and Land Use committee Secretariat, Victoria. 7 pp.

f) Laycock, A.H. 1970. American attitudes concerning Canadian water. Unpublished paper presented to the Albert Geographical Society. Edmonton. 8 pp.

8. Newspaper and Magazines

a) Vancouver Sun. 1977. Flight against Kootenay River diversion grown. Wed. Dec. 14. Page A-18.

b) Western Miner. 1977. New sinking technique used for gypsum mine shaft. November 1977. Pages 28, 30.

9. Maps

a) British Columbia Department of Mines and Petroleum Resources. 1973. Mineral deposit and land-use map. 1:250,000. Victoria.

b) Canada Map Office, Department of Energy, Mines and Resources. 1976. Elko mapsheet, No. 82 G/6. Overprinted. 1:50,000. Ottawa.

10. Personal Communications

a) Strang, R.M. 1977. Faculty of Forestry, University of B.C. Personel communication.

b) Alderdice, D.F. 1986. Fish Culture Research, Pacific Biological Station, Dept. of Fish. and Oceans. Nanaimo, B.C. Personal communication.

APPENDIX D

SAMPLE STREAM SUMMARY REPORT

A. DESCRIPTION

Stream Name: TAHLTAN RIVER Local Name: Watershed Code: 54	D.F.O. Division: FRASER RIVER District: 10 WHITEHORSE Subdistrict: 120 YUKON SOUTH/NORTH B.C. Statistical Subarea: - M.O.E.P. Region: 6 SKEENA Management Unit: 22

Tributaries	Code
HARTZ CREEK	0800
MIDDLE CREEK	1400
BEATTY CREEK	2200
BEAR CREEK	3100
LITTLE TAHLTAN RIVER	3300

Topographic (1:50k) Map: 104J/2W
B.C.G.S. (1:20k) Map:
U.T.M. Mouth: 9.3831.64313
Lat./Long. Mouth: 58 DG. 01' '' 130 DG. 58' ''
Mainstem Length: 75.0 km Ref. No.: 120-44
Watershed Area: 1950.0 km2 Ref. No.: 120-44

Location: FLOWS SE. INTO THE STIKINE R., W. OF THE TUYA R., CASSIAR DISTRICT

Gradient Class/Location (km upstream from mouth)					Comments
0 - .5%	.5 - 2%	2 - 5%	5 - 10%	>10%	0-6.4 KM EXHIBITS A 1.9% SLOPE WITH AN AVERAGE GRADIENT OF 2.3% (REF. 120-18, REF. 120-44)
	0.0- 6.4				

B. OBSTRUCTIONS TO MIGRATION

Barrier (Type)	Height (meters)	Location (km U/S)	Impassable to (species)	Comments
NB NO BARRIER				NONE BELOW LAKE; LANDSLIDE LOCATED 4 KM UPSTREAM FROM THE MOUTH BLOCKED SALMON MIGRATION IN 1965; ROCK OBSTRUCTION AT DECHEEKA FALLS REMOVED MAY, 1978 (REF. 120-14, REF. 120-18)

C. FLOW

Flow Control: Y
Water Survey of Canada (WSC) Flow Gauge: N
W.S.C. Station No. 1: No. 2: No. 3: No. 4:

Comments: FLOW CONTROL DAM BUILT AT TAHLTAN L. IN 1959 (REF. 120-27)

D. DISTRIBUTION SUMMARY

Species	Watershed Distribution
SK SOCKEYE SALMON	MIGRATION: ADULT MIGRATION THROUGH TAHLTAN R. TO TAHLTAN L.; OUTMIGRATION OF JUVENILES FROM LAKE TO MOUTH (ADDITIONAL REF. 120-27) (REF. 120-4, REF. 120-7, REF. 120-24)
SK SOCKEYE SALMON	SPAWNING: ALONG LAKE SHORE (REF. 120-14, REF. 120-27)
SK SOCKEYE SALMON	REARING: IN LAKE (REF. 120-7, REF. 120-13)
CO COHO SALMON	SPAWNING: PRESENCE NOTED (REF. 120-7)
CO COHO SALMON	REARING: PRESENCE NOTED (REF. 120-7)
PK PINK SALMON	MIGRATION: ADULT MIGRATION TO THE LITTLE TAHLTAN R.; OUTMIGRATION OF JUVENILES FROM 0-30.0 KM (REF. 120-13)
CH CHINOOK SALMON	MIGRATION: ADULT MIGRATION FROM MOUTH TO LAKE 0-61.0 KM; OUTMIGRATION OF JUVENILES FROM 0-30.0 KM (REF. 120-7)
CH CHINOOK SALMON	SPAWNING: 0-30.0 KM (SCATTERED FROM MOUTH TO 1/2 KM UPSTREAM OF THE LITTLE TAHLTAN R. CONFLUENCE) (REF. 120-27)
CH CHINOOK SALMON	REARING: 0-30.0 KM (REF. 120-7)

D. DISTRIBUTION SUMMARY CONTINUED

Species	Watershed Distribution
ST STEELHEAD	MIGRATION: PRESENCE NOTED (REF. 120-7, REF. 120-10, REF. 120-27)
ST STEELHEAD	SPAWNING: PRESENCE NOTED (REF. 120-7, REF. 120-10, REF. 120-27)
ST STEELHEAD	REARING: PRESENCE NOTED (REF. 120-7, REF. 120-10, REF. 120-27)
DV DOLLY VARDEN	SPAWNING: PRESENCE NOTED IN RIVER AND LAKE (REF. 120-22, REF. 120-25)
DV DOLLY VARDEN	REARING: PRESENCE NOTED RIVER AND LAKE (REF. 120-22, REF. 120-25)
RB RAINBOW TROUT	SPAWNING: IN TAHLTAN L. (REF. 120-13)
RB RAINBOW TROUT	REARING: IN TAHLTAN L. (REF. 120-13)

E. ESCAPEMENT SUMMARY

Species	Escapement			Maximum Recorded Escapement	Ref. No.	Management Target Escapement	Ref. No.
	Mean	Period of Record	Ref. No.				
SK SOCKEYE SALMON	20919	1959 - 1986	120-29	67326	120-29		
CH CHINOOK SALMON	1250	1975 - 1986	120-29	2908	120-29		
Comments: CH: CHINOOK ESCAPEMENTS DO NOT INCLUDE LITTLE TAHLTAN R. (REF. 120-13)							

F. LIFE HISTORY TIMING

Species	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SK SOCKEYE SALMON	Migration Spawning Incubation Rearing							X	P X X	P X	X		
CH CHINOOK SALMON	Migration Spawning Incubation Rearing						X	X X X	X P X				
ST STEELHEAD	Migration Spawning Incubation Rearing		X	X X	X X		X			X X	X X		
Comments: SK, CH: MIGRATION AND SPAWNING (REF. 120-24, REF. 120-29)													
SK: OUTMIGRATION (AFTER 1 YEAR REARING IN THE LAKE) EARLY MAY - EARLY JUNE WITH THE PEAK OCCURRING IN LATE MAY (REF. 120-7, REF. 120-13, REF. 120-24)													
CH: OUTMIGRATION OF FRY LATE APRIL - EARLY MAY WITH THE PEAK IN LATE MAY; OUTMIGRATION OF SMOLTS LATE APRIL - LATE MAY WITH THE PEAK IN EARLY TO MID-MAY (REF. 120-7, REF. 120-13, REF. 120-24)													
ST: MIGRATION AND TIMING INFORMATION (REF. 120-10, REF. 120-13)													

G. ENHANCEMENT/MANAGEMENT ACTIVITIES IN WATERSHED

Type of Activity	Species	Location (km U/S)	Comments	Period of Operation Start/Finish
CF COUNTING FENCE	SK SOCKEYE SALMON	61.0	ADULT SOCKEYE ENUMERATED AT LAKE OUTLET (REF. 120-13)	1959/1959
CF COUNTING FENCE	SK SOCKEYE SALMON	61.0	SOCKEYE SMOLT FENCE AT LAKE OUTLET (REF. 120-13, REF. 120-24)	1984/1984

G. ENHANCEMENT/MANAGEMENT ACTIVITIES IN WATERSHED CONTINUED

Type of Activity	Species	Location (km U/S)	Comments	Period of Operation Start/Finish
FS FISH SAMPLING	SK SOCKEYE SALMON	61.0	BIOLOGICAL SAMPLING (REF. 120-13, REF. 120-24)	1977/1977
FT LAKE FERTILIZAT'N	SK SOCKEYE SALMON	61.0	FERTILIZATION OF TAHLTAN LAKE (REF. 120-13)	1986/1986

H. LAND USE/WATER USE/WATER QUALITY

Activity	Description/Location
RE RESERVES	TAHLTAN INDIAN BAND RESERVES: #1 BORDERS MOUTH; #5 BORDERS RIVER 29.0 KM UPSTREAM (REF. 120-38)

I. FISH PRODUCTION POTENTIAL/CONSTRAINTS/GENERAL COMMENTS

LARGEST SINGLE PRODUCER OF SOCKEYE AND CHINOOK SALMON IN THE STIKINE DRAINAGE (REF. 120-7, REF. 120-8)
THE OUTLET STREAM (TAHLTAN R.) FROM TAHLTAN LAKE HAS MANY ACTIVE BEAVER COLONIES, HIGH FLOWS ARE RESULTINGLY NEEDED FOR SOCKEYE TO REACH THE LAKE; OUTLET STREAM DRYING WAS CORRECTED BY THE CONSTRUCTION IN 1959 OF A WATER FLOW CONTROL DAM (REF. 120-27)
NO APPARENT INCREASE IN FRY DENSITIES WITH LAKE FERTILIZATION; FRY IMPLANTS OR INCREASED ESCAPEMENT MAY BE NEEDED TO UTILIZE THE ZOOPLANKTON PRODUCTION (REF. 120-30)
TAHLTAN LAKE HAS RELATIVELY HIGH EUPHOTIC VOLUME BUT LOW SOCKEYE FRY DENSITY (REF. 120-30)
SMALL NUMBERS OF STEELHEAD ARE TAKEN IN THE INDIAN FOOD FISHERY IN SUMMER, PROBABLY REPRESENTS A SMALL SUMMER RUN. MOST STEELHEAD MOVE INTO THE TAHLTAN R. IN FALL AND SPAWN IN EARLY SPRING (REF. 120-13)

J. FISHERY OFFICER NARRATIVE

Date Prepared: / /	Prepared By:

K. SIS COMPLETED BY

Completed by:	COLIN RICE	Date:	1988/03/23

REFERENCE NO: 120- 4
AUTHOR: ALASKA DEPARTMENT OF FISH AND GAME.
DESCRIPTION: 1957. ANNUAL REPORT. JUNEAU, ALASKA
LOCATION: F DFO - DISTRICT #10 - WHITEHORSE
KEYWORDS:

REFERENCE NO: 120- 7
AUTHOR: AQUATIC ENVIRONMENTS LIMITED.
DESCRIPTION: 19828. TAHLTAN FRY ENUMERATION STUDY. REPORT PREPARED FOR B. C. HYDRO BY P. MCCART, W. GRANT AND G. WALDER.
LOCATION: F DFO - DISTRICT #10 - WHITEHORSE
KEYWORDS:

REFERENCE NO: 120- 8
AUTHOR: BERGMANN, W.
DESCRIPTION: 1978. SALMON SPAWNING POPULATIONS OF THE STIKINE RIVER, FEBRUARY, 1978. ALASKA DEPT. FISH AND GAME. JUNEAU, ALASKA.
LOCATION: F DFO - DISTRICT #10 - WHITEHORSE
KEYWORDS:

REFERENCE NO: 120- 10
AUTHOR: B. C. HYDRO AND POWER AUTHORITY.
DESCRIPTION: 1984. STIKINE-ISKUT DEVELOPMENT; INTERIM ASSESSMENT REPORT. REPT. NO. H1693
LOCATION: F DFO - DISTRICT #10 - WHITEHORSE
KEYWORDS:

REFERENCE NO: 120- 13
AUTHOR: ETHERTON, P.
DESCRIPTION: 1988. DEPARTMENT OF FISHERIES AND OCEANS. WHITEHORSE, YUKON. PERSONAL COMMUNICATION.
LOCATION:
KEYWORDS:

REFERENCE NO: 120- 14
AUTHOR: HANCOCK, M.J. AND D.E. MARSHALL.
DESCRIPTION: 1984. CATALOGUE OF SALMON STREAMS AND SPAWNING ESCAPEMENTS OF SUB-DISTRICTS 120 AND 130 (ALSEK-STIKINE-TAKU WATERSHEDS). CAN. DATA REP. FISH. AQUAT. SCI. NO. 456. 233P.
LOCATION: F DFO - DISTRICT #10 - WHITEHORSE
KEYWORDS:

REFERENCE NO: 120- 18
AUTHOR: KUPKA, K.H.
DESCRIPTION: 1965. REPORT ON THE TAHLTAN RIVER LANDSLIDE. DEPT. OF FISHERIES OF CANADA, VANCOUVER, B. C. 7P.
LOCATION: D DFO - FRASER R., NORTHERN B.C. & YUKON DIVISION - NEW WEST
KEYWORDS:

REFERENCE NO: 120- 22
AUTHOR: NORTHERN NATURAL RESOURCES SERVICES LIMITED.
DESCRIPTION: 1979. STIKINE-ISKUT AQUATIC ECOLOGICAL STUDIES, 1978: DOWNSTREAM SECTIONS. REPORT PREPARED FOR B. C. HYDRO. 315P.
LOCATION: D DFO - FRASER R., NORTHERN B.C. & YUKON DIVISION - NEW WEST
KEYWORDS:

REFERENCE NO: 120- 24
AUTHOR: RICE, C.W.
DESCRIPTION: 1986. A REVIEW OF THE STIKINE RIVER FISHERIES RESOURCE. UNPUBLISHED REPORT PREPARED FOR THE DEPARTMENT OF FISHERIES AND OCEANS.
LOCATION: D DFO - FRASER R., NORTHERN B.C. & YUKON DIVISION - NEW WEST
KEYWORDS:

REFERENCE NO: 120- 25
AUTHOR: RICE, C.W.
DESCRIPTION: 1987. TAHLTAN JOB DEVELOPMENT PROGRAM. PERSONAL OBSERVATION.
LOCATION:
KEYWORDS:

REFERENCE NO: 120- 27

AUTHOR: SAVOIE, P.J. AND J. HRENYK.
DESCRIPTION: 1975. STREAM INVENTORY; STIKINE RIVER AND TRIBUTARIES. DEPT. FISH. CAN. FISH. MAR. SERV., WHITEHORSE, YUKON. UNPUBLISHED MEMORANDUM REPORT.
LOCATION: D DFO - FRASER R., NORTHERN B.C. & YUKON DIVISION - NEW WEST
KEYWORDS:

REFERENCE NO: 120- 29

AUTHOR: TRANSBOUNDARY RIVER TECHNICAL COMMITTEE.
DESCRIPTION: 1987. REPORT OF THE PACIFIC SALMON COMMISSION TRANSBOUNDARY RIVER TECHNICAL COMMITTEE. PREPARED FOR MEMBERS OF THE PACIFIC SALMON COMMISSION AND NORTHERN PANEL.
LOCATION: D DFO - FRASER R., NORTHERN B.C. & YUKON DIVISION - NEW WEST
KEYWORDS:

REFERENCE NO: 120- 30

AUTHOR: VON FINSTER, A.
DESCRIPTION: 1988. DEPARTMENT OF FISHERIES AND OCEANS. WHITEHORSE, YUKON. PERSONAL COMMUNICATION.
LOCATION:
KEYWORDS:

REFERENCE NO: 120- 38

AUTHOR: MARION, V.
DESCRIPTION: 1987. TAHLTAN TRIBAL COUNCIL. PERSONAL COMMUNICATION.
LOCATION:
KEYWORDS:

REFERENCE NO: 120- 44

AUTHOR: NORECOL ENVIRONMENTAL CONSULTANTS LIMITED.
DESCRIPTION: 1987. GOLDEN BEAR PROJECT ACCESS ROAD REPORT. REPORT PREPARED FOR NORTH AMERICAN METALS B.C. INC. AND CHEVRON MINERALS LTD.
LOCATION:
KEYWORDS:

APPENDIX E

ATTENTION AND ERROR MESSAGES

E.1 Attention Messages

ATTENTION ADD COMPLETED ... [HIT RETURN]
ATTENTION FUNCTION NOT COMPLETED ... [HIT RETURN]
ATTENTION LOCAL NAME IS NOT VALID ... [HIT RETURN]
ATTENTION NO MORE STREAMS ... [HIT RETURN]
ATTENTION NO REFERENCES FOUND ... [HIT RETURN]
ATTENTION NO STREAMS FOUND ... [HIT RETURN]
ATTENTION NO STREAMS IN AREA SELECTED ... [HIT RETURN]
ATTENTION NO STREAMS TO VALIDATE ... [HIT RETURN]
ATTENTION STREAM NAME NOT VALID ... [HIT RETURN]
ATTENTION UPDATE CANCELLED ... [HIT RETURN]
ATTENTION WATERSHED CODE IS NOT VALID ... [HIT RETURN]

E.2 Error Messages

ERROR ACTIVITY CODE IS NOT VALID ... [HIT RETURN]
ERROR ANOTHER FUNCTION ALREADY IN PROGRESS ... [HIT RETURN]
ERROR BARRIER CODES IS NOT VALID ... [HIT RETURN]
ERROR BCGS MUST BE NUMERIC ... [HIT RETURN]
ERROR CODE MUST CONTAIN A DASH - ... [HIT RETURN]
ERROR DEGREES LATITUDE MUST BE NUMERIC ... [HIT RETURN]
ERROR END YEAR MUST BE NUMERIC ... [HIT RETURN]
ERROR ENTER ACTIVITY CIDE ... [HIT RETURN]
ERROR ENTER ACTIVITY CODE ... [HIT RETURN]
ERROR ENTER BARRIER CODE ... [HIT RETURN]
ERROR ENTER COMPLETED BY ... [HIT RETURN]
ERROR ENTER DATE ... [HIT RETURN]
ERROR ENTER GEOGRAPHIC AREA ... [HIT RETURN]
ERROR ENTER ONLY ONE AREA ... [HIT RETURN]
ERROR ENTER REFERENCE CODE ... [HIT RETURN]
ERROR ENTER STREAM NAME ... [HIT RETURN]
ERROR ENTER SUBDISTRICT ... [HIT RETURN]
ERROR ENTER TRIBUTARY CODE ... [HIT RETURN]
ERROR ENTRY TRIBUTARY NAME ... [HIT RETURN]
ERROR ENTER WATERSHED NAME ... [HIT RETURN]
ERROR FIELD WKMEAN VAD INTEGER CONVERSION ... [HIT RETURN]

ERROR FIELD WKMAXIMUM BAD INTEGER CONVERSION ... [HIT RETURN]

ERROR FIELD WKMENU BAD INTEGER CONVERSION ... [HIT RETURN]
ERROR FIELD WKTARGET BAD INTEGER CONVERSION ... [HIT RETURN]

ERROR FUNCTION ALREADY IN PROGRESS ... [HIT RETURN]
ERROR FROM PERIOD NOT VALID ... [HIT RETURN]
ERROR HEIGHT MUST BE NUMERIC ... [HIT RETURN]
ERROR INVALID ACTIVITY CODE ... [HIT RETURN]
ERROR INVALID DATE ... [HIT RETURN]
ERROR INVALID FLAG, ENTER Y,N, OR SPACE ... [HIT RETURN]

ERROR INVALID FLAG, ENTER X OF SPACE ... [HIT RETURN]
ERROR INVALID KEYWORD CODE ... [HIT RETURN]
ERROR INVALID LIFE HISTORY TIMING CODE ... [HIT RETURN]
ERROR INVALID MOEP REGION ... [HIT RETURN]
ERROR INVALID RANGE ... [HIT RETURN]

ERROR INVALID REFERENCE CODE ... [HIT RETURN]
ERROR INVALID SPECIES CODE ... [HIT RETURN]
ERROR INVALID SUBDISTRICT ... [HIT RETURN]
ERROR INVALID TRIBUTARY CODE ... [HIT RETURN]
ERROR INVALID TOPOGRAPHIC MAP NUMBER ... [HIT RETURN]
ERROR INVALID WATERSHED CODE ... [HIT RETURN]
ERROR LOCAL NAME IS NOT VALID ... [HIT RETURN]
ERROR LOCATION MUST BE NUMERIC ... [HIT RETURN]
ERROR LOCATION CODE NOT VALID ... [HIT RETURN]
ERROR MAINSTEM LENGTH MUST BE NUMERIC ... [HIT RETURN]
ERROR MEAN MUST BE NUMERIC ... [HIT RETURN]
ERROR MOEP REGION MUST BE NUMERIC ... [HIT RETURN]
ERROR NOT A VALID COMMAND IN BROWSE MODE ... [HIT RETURN]
ERROR REFERENCE CODE NOT FOUND ... [HIT RETURN]
ERROR REFERENCE CODE ALREADY USED ... [HIT RETURN]
ERROR REGION MOT VALID ... [HIT RETURN]
ERROR SPECIES CODE IS NOT VALID ... [HIT RETURN]
ERROR SPECIES CODE MAY NOT BE BLANK ... [HIT RETURN]
ERROR STREAM NAME CODE IS NOT VALID ... [HIT RETURN]
ERROR SUBDISTRICT NOT VALID ... [HIT RETURN]
ERROR TO PERIOD NOT VALID ... [HIT RETURN]
ERROR TIRBUTARY NAME CODE IS NOT VALID ... [HIT RETURN]
ERROR UTM MUST BE NUMERIC ... [HIT RETURN]
ERROR VALUE OUT OF RANGE ... [HIT RETURN]
ERROR WATERSHED CODE ALREADY EXISTS ... [HIT RETURN]